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Editorial.

The Port of Ghent.

Ghent is the second port of Belgium, and is connected with the sea by a canal, 21 miles long, ending at the little Dutch town of Terneuzen on the Hont or Wester Schelde.

The Terneuzen Canal is 318 1/3-ft. wide at water level and 163 1/10-ft. at the bottom with a depth of 28 7/10-ft. All bridges constructed over the canal have navigable passageways of 85 1/3-ft. available width. Vessels can enter and leave the canal at all tides through the tidal locks, of which there are three, at Terneuzen. The largest is 459-ft. long by 59-ft. available width. The set of locks can accommodate a great variety of vessels up to steamers of 584-ft. length. The tidal locks have their sills a minimum 27-ft. under the floating level of the canal, so that the Port of Ghent is accessible to the largest cargo boats.

The port comprises a total of 455 acres of water space, 50 acres of dock property, and 17 miles of quay space. It may be divided into five distinct parts: the Commercial Dock and the Timber Dock which form the oldest part of the port; the Fore Harbour which accommodates the Baltic flax traffic and regular steamship lines to and from England; the Great Bassin which is 6,650-ft. long and 590-ft. wide; the Wet Docks with their powerful harbour plant and important manufactories; and finally the banks of the Terneuzen Canal as far as the bridge at Selzaete, the extreme limit of the port of Ghent, which form the real Fore Harbour and which are being gradually occupied by important undertakings of the industrial port.

The harbour plant of these different basins comprises seventy electric 2½-ton cranes, thirty-two 3-ton cranes, nineteen 5-ton cranes and one 25-ton crane, two floating cranes of 11 tons and one of 25 tons. In addition to this, a number of special lifting apparatus, including several 5-ton cranes and a floating crane of 5 tons, have been installed by private enterprise.

The maritime prosperity of Ghent has made prodigious strides during the last few years. In 1913 1,398 vessels entered and cleared with a register tonnage of 1,061,425; and in 1929 2,882 vessels entered and cleared with a register tonnage of 2,934,449.

The total of merchandise handled in 1929 (8,706,321 metric tons) exceeds the figure for 1928 (5,038,217 metric tons) by 72 per cent., and that for 1913 (1,906,204 metric tons) by 357 per cent.

Ghent is above all a port for the transshipment of heavy merchandise and full cargoes. The port equipment has therefore been specialised to this end, and the result of this specialisation is proving a powerful magnet in drawing this particular class of cargo to the port. The quantity of coal transshipped amounted in 1929 to 3,453,000 metric tons; exports of iron and steel to 1,145,742 metric tons; and imports of timber to 551,882 metric tons. The direct importation of cotton from America amounted to 48,609 metric tons and of flax from the Baltic to 58,044 metric tons. Ghent is the eighth cotton port of Europe.

To allow of a further and wider development of the port, now become imperative and urgent, the Port and Municipal Authorities have elaborated a project which will resolve the problem of the future. The construction of a vast new canal basin to the north-east of the present docks, opening into the Terneuzen Canal 655-ft. above the bridge at Langerbrugge, has already been commenced. This basin will be 7,860-ft. long and 655-ft. wide and will provide further quay space.

The waterway giving access to the Port is also to be widened and deepened, and the realisation of these plans will make Ghent one of the finest ports on the Continent.

The Port of Ghent forms the subject of this month's supplement and an illustrated article appears on another page.

London's Shipping still Increasing.

London's shipping, despite the general trade depression, has been greater than ever this year. During the nine months from January to September the tonnage of vessels that used the Port was more by 834,296 register tons than during the same period of 1929. The relative figures are 43,738,889 net register tons for 1930 and 42,904,593 net register tons for 1929.

The imports handled over the Port of London Authority's quays during the period were 17,683 tons more than in 1929, but the tonnage of exports handled was less. Even so, the total turnover of goods during the first nine months of the year was down by only about 56,000 tons compared with last year.

It is well known that owing to the establishment of new industries, the environs of London and the South generally have been affected to a lesser extent by trade depression than other areas. The figures of the Port's activities go to prove the resilience of London as a great market and distributing centre, the net small falling off in the total tonnage handled being chiefly attributable to the unsatisfactory condition of certain export trades in the Midlands.

Harbour Maintenance in the Isle of Man.

Manx Tynwald Court has approved the estimates submitted by the Harbour Commissioners for the maintenance of the harbours of the Island (including the Victoria Pier Buildings and Swing Bridge, Douglas, and the Queen's Pier, Ramsey) for the year ending 31st March, 1931, amounting in the aggregate to £24,801 9s. 1d. A grant is made to the Harbour Commissioners of a sum not exceeding £19,250, to be applied, along with moneys in the hands of the Commissioners, towards maintenance, such works including:—for Victoria Pier Buildings, £1,250; for Douglas Harbour Swing Bridge, £1,200; maintenance of Queen's Pier, Ramsey, £1,250. The Treasurer of the Isle of Man has been authorised to apply a sum not exceeding £2,300 from the current revenue and not exceeding £5,000 from the passenger duty and harbour dues, or either of them, levied at the several harbours, for the purpose of enabling the Harbour Commissioners to:—(1) Continue with the work of reconstructing Peel East Quay Wall, £2,500; (2) Continue with the work of strengthening and widening of the south side of the Victoria Pier, Douglas, £4,000; (3) Carry out repairs to Peel Groyne, £800. Total, £7,300.

Port of Madras.

The administration report of the Madras Port Trust for the year 1929 to 1930 shows that the actual revenue receipts for the year amounted to Rs.4,531,021, a decrease of Rs.424,953 from the previous year. The decrease in revenue is due to the fall in the tonnage of both imports and exports landed at and shipped from the port.

The gross expenditure, inclusive of contributions to the three reserve funds, amounted to Rs.4,533,938, as compared with Rs.6,477,293 in 1928-29. Excluding from the gross expenditure the interest on loans, which in the year under review amounted to Rs.814,488, contribution to capital (Rs.556,374), repayment of debt (Rs.343,626), sinking fund (Rs.78,453) and amounts set aside for reserve funds (Rs.330,000), actual working expenses came to 53.21 per cent. of the income against 52.55 per cent. in the previous year.

Though the number of vessels that entered the harbour has decreased from 896 in 1928-29 to 878 in 1929-30, the total net registered tonnage has increased from 3,075,628 to 3,081,851. The average size in tonnage of each vessel has increased from 3,663 net registered tons to 3,726 net registered tons.

The Port of Ghent.

(Translated from the French).

Historical Sketch. Construction Works. Waterway Access. Navigation Routes. Statistics.

Nouveau Bassin: A General View.

I.—Historical Sketch of Port.

IN spite of their excellent situation on the Scheldt, which transported their vessels to the North Sea, the citizens of Ghent had at an early date begun to dream of putting their town in direct communication with the Atlantic.

In the first place, owing to the wide detour made by the river around the Waes country, the route by way of the Scheldt proved too long, and secondly, owing to the great number of toll and Customs' duties charged on this river bend, its navigation was found too troublesome; and, lastly, it should be borne in mind that at this date the Scheldt was not only a Flemish but also a Brabantine possession.

The route which commended itself as the most direct to the patrician aldermen of the thirteenth century was that by the North-West, which had the further advantage of converging near by Bruges, the great commercial and financial metropolis of Western Europe at that era.

In the year 1251 Countess Marguerite of Constantinople authorised the XXXIX. (aldermen) of Ghent to link up their commerce with the gulf of Zwyn by widening and deepening the small tributary, the Liève. The dispossessing of property, etc., along this river stretch was speedily completed, thanks to the summary co-operation of the Count's bailiffs, and then gangs of navvies were engaged to dig out the river up to its very source and to link up its course thus excavated with the waters of Ghent.

The canal started from the Lys, opposite La Boucherie, passed by the Château des Comtes, crossed the wild fields of Wondelghem as far as Vinderhaute, and reached Saint-Laurent, and then after describing a curve, emptied at Slepeldamme, on the Zwyn. A series of barricades which kept back the water, as in locks, regulated the water level in the Liève. The town had been guaranteed the property rights in the river banks, had taken most scrupulous control of their navigation, and since 1408 had exacted from boatmen a strict observance of very definite stipulations.

The devastating wars in the middle and at the close of the fifteenth century, however, proved fatal for the Liève, which was steadily in need of being cleared out at great expense. It may, in fact, be said that this small canal, besides being too shallow and very narrow, became, after the reign of Philippe le Beau, sand-blocked, just like the Zwyn gulf into which it emptied. Since then Antwerp threatened to attract to itself all the trade of Flanders, a contingency that would have spelt complete disaster for Ghent.

Moreover, at the beginning of the sixteenth century the community passed through a grave social and political crisis, the settlement of which necessitated intervention no less serious than the Sentence de Charles Quint and the Concession Caroline (1540).

After the lapse of several years Ghent, ambitious to regain, if not its former political prestige, at least its financial ascendancy within the County of Flanders, began to explore some means to re-establish a direct communication with the ocean, and to this end several schemes were put forward.

The most effective of these was the project of acquiring complete possession of the Hont or Western Scheldt. In order to reach the Braeckman or Dullaert it was sufficient to prolong the " cutting " called the Pêcherie du Vicomte, and thereafter to Rodenhuize between Desteldonck and Tordonck as far as the lock of Haemerlinck at Assenede in the " land-dyke " of Quatre Métiers. It was this scheme that the aldermen submitted to the Government at Brussels on February 3rd, 1547. On May 26th Charles Quint granted them his permission and the work was undertaken, and so energetically carried out that by the end of the next year the " New Canal " was already open to navigation. The Emperor showed himself interested in the operations, and in January, 1549, he conceded further licences to those already granted " to aid and advance the operations in question." On 20th July, 1549, on the occasion of his son's auspicious entry into Ghent, he conducted him on a boat, along with the two queens, Maria of Hungary and Eléonore of France, to view the canal construction as far as the fall over the barrage called the Sas. Lastly, on the 13th of the following December, the Emperor gave his consent to the piercing of this barrage and to the construction there of whatever locks, quays and dams were necessary. On August 29th, 1551, the Burgermeester, Antoine de Baenst, laid the foundation stone of the salt water lock, named Zoutespey, and on May 8th, 1555, Adolphe de Bourgogne laid the first stone of the fresh water lock bearing the same name. Seven years later the Seigneur

The Port of Ghent—continued.

de Wacken was despatched to Spain in order to obtain from the King the right to make the new canal of Sas exempt from all duties. His mission proved completely successful, and on January 2nd, 1563, proclamation was made granting immunity from toll charges and Customs duties. Finally the barrage at Zoutespey was broken through on April 3rd, 1563, and on the very next day the first high sea vessel was able to ascend as far as Ghent, being ultimately moored at Kuipgat.

Unfortunately, however, on July 8th, 1564, the sluice-gate pier at Axel collapsed, along with the quay, and after numerous consultations the aldermen decided to dismantle the Zoutespey and to construct another lock some 300 yards nearer the " land dyke." On May 6th, 1566, Jean Damman Seigneur, of Oomberghe, and senior alderman, laid the foundation stone of this new lock, which was to bear the name of Sas de Gand, and which was fortified without delay; the canal was completed on July 29th, 1567. " Please God," wrote Marc Van Vaernewyck at this date, " that the canal may prove of value to Ghent and to the whole country." Alas! how cruelly was this patriotic aspiration to be shattered within only six years.

The excavating of the Sas passage occasioned a series of constructive buildings to be undertaken in connection with waterways in the town; in 1557 the construction of a masonry quay extending from Kuipgat as far as the Frères Mineurs Bridge, and in 1562 the reconstruction of the quay Aux Herbes. At Kuipgat a new stone bridge had been erected in 1158, and between 1562 and 1566 there was restored at the Pré d'Amour a bridge consisting partly of stone and partly of iron. The wooden bridge of St. Bavon was completed on November 5th, 1565. In this same year the new canal was linked up by a fresh cutting at Meerhem. As an immediate consequence it became possible from that time to fetch fish, free of all impost, from the sea to the Lys, and from there, past the Boucherie, to the fish market, and at Kuipgat there was installed a control bureau for cured and barrelled herrings.

It appeared that the town was to recapture its former commercial and industrial activity.

But what a cataclysm of religious disturbances took place in 1566! The tyranny and the massacres of the Duke of Alba and the impost of the tenth quota provoked the insurrection of the principalities of the North. On May 1st, 1572, the Gueux de Mer (sea loafers) took possession of La Brielle, and on May 21st one of their bands surprised the Sas de Gand, destroyed the gates of its locks, and also the bridge, and within a few hours ruined the results of so arduous and protracted labours.

It is true, of course, that ever since the reign of Albert and of Isabelle the canal was still in service for internal navigation, but its outlet towards the sea, which had been practically closed throughout a period of 75 years, was officially closed by the Peace of Munster (1648) and remained so till 1795, when the French arrived.

The stoppage of the Sas passage by the Dutch, its gradual filling up with sand and the blocking of the Braakman where it emptied, forced the citizens of Ghent to abandon this corridor to the sea. From that time the Estates of Flanders, during the Twelve Years' Truce, decided to put in operation a project already launched by the people of Bruges in the fourteenth century. Briefly, Bruges, in order to obtain possession of a waterway which would adorn at one and the same time La Reye and the Zwyn, and also to connect themselves up with the Lys, had conceived the plan of deepening the small stream called the Zuudleye, which from times immemorial had supplied the town with fresh water. At an earlier date Louis de Nevers had already forbidden the prolongation of this " channel " up to Deinze. In 1361 Bruges obtained permission to excavate as far as Saint George and from there towards Aeltre and Poucques so as finally to reach the valley of the Lys. Seventeen years afterwards operations were rapidly pushed on with the fixed intention of at last completing the canal called the Nouveau Lys. But the Ghent boatmen, in dread of losing their navigation monopoly and after them the entire community of Ghent, jealous for the preservation of its precious hoard of grain, rushed to arms, wearing white caps on their heads, and routed the navvies of Bruges. This was the origin first of the rising under Jean Hyoens and subsequently of the revolt of Philippe van Artevelde.

Since that time this project was abandoned. It was again revived in 1585 after Ghent and Bruges had been again brought under the rule of Philippe II. The Spanish monarch gave his sanction to the carrying out of the former scheme. But in consequence of the blocking of the Zwyn this scheme could no longer fulfil the desires and wishes of the people of Bruges. Moreover, operations progressed slowly and many difficulties were encountered which led to fresh delays. The crowning misfortune came in 1604 when Maurice of Nassau seized the lock, or in other words the key to the Zwyn. This was the coupe de grâce that ruined the trade of Bruges.

The Deputies of Flanders then amended their plans and resolved to continue the Zuusleye to Ghent and to convert it into a navigable canal.

The mandate of the archdukes authorising the excavation is dated July 17th, 1613. Generous subsidies were voted, operations began in 1614 and were prosecuted for six years; the greatest difficulties met with by the engineers were at the " threshold " of Saint Georges. From 1622 till 1625 Bruges was engaged in constructing its barrage at the Minnewater.

Forty years later the Spanish Government decided to continue this canal as far as the ocean. The Marquis of Caracera took a great practical interest in the canal from Ostende to Bruges and he further decided to deepen also the canal connecting Ghent to this town.

In spite of the opposition from boatmen and of other privileged trades of Ghent the Bruges canal was actually deepened, and in 1665 a coasting vessel from Biscay entered Ghent.

Unfortunately this maritime waterway met with little success, undoubtedly because the new " port " was situated on the other side of the port of Bruges. It was not until the Marquis Botta Adorno, under Maria Theresa, caused the Bruges Canal to be linked up with the Lys by the excavation of the " Coupure " in 1751 that the communications with the sea sprang into new life and vigour.

At the same time the inhabitants of Ghent, with their innate enterprise, were far from satisfied with this insignificant waterway, and accordingly, from the time of the freeing of the Scheldt in 1795, they began to cherish hopes of re-establishing the direct passage towards the North.

For one moment Napoleon entertained the plan of restoring the Sas route, but his struggles against all Europe combined did not allow of his realising its execution. And this was during the reign of William I. of Holland, when it might have been possible to realise the idea cherished so long.

One thing that is certain is that there was no longer any desire to utilise the old route of Charles Quint. The Water Ministry elaborated a scheme which had for its aim the connecting of Ghent with Terneuzen by a canal of generous width and depth. This new maritime route was to be prolonged to reach Ghent as formerly with the Sas route, but ran westwards and parallel therewith on its quitting the town. When one for a moment reflects that at this date there was no dwelling-place standing to the east of Saint Sauveur and Terre Neuve Streets, it is to be regretted that the water engineers did not arrange that the new canal should empty directly into the Lys, near to the Pré d'Amour Bridge.

Operations on the new canal, under the superintendence of the engineers, Noël and van Diggelen, began in the month of March, 1825, and the contractors engaged for the work of embanking squads of " botteresses " of Liège. In spite of the great difficulties met with, more particularly at the Trou d'Axel, the undertaking progressed rapidly. The foundation stone of the Terneuzen Lock was laid on June 7th, 1826, by Van Doorn, Governor of Zeeland, and on April 27th, 1827, King William, in recognition of the outstanding abilities of this official, appointed him to act as his Commissioner and Supervisor for the restoration and general superintendence of the operations in the construction of the new canal, giving him special instructions to expedite its entire completion as far as practicable. And, in point of fact, the year had not expired before the new navigation waterway, of some 34 kilometres (21 miles) in length, measuring 8 to 12 metres from upper level to bottom, and with a working draught of 4½ metres, was fully prepared to accommodate deep ocean ships.

With becoming ceremony it was thrown open for navigation on November 18th, 1827, by Van Doorn, who had in the meantime been promoted to the Governorship of East Flanders.

In order to complete the canal the municipal authorities had the Bassin de Commerce excavated in 1828, from which access could be gained to the port of Antwerp by way of one of the moats of the Château des Espagnols, which communicated with the Lys, and which further extended as far as the Sas port. This basin, commonly known as the dock, measures 1,700 metres (nearly 1 mile) in length, is 60 metres wide, its depth being the same as that of the former canal.

Such were the modest beginnings in laying the foundations of this magnificent port.

Improvements in the Terneuzen Canal and in the Development of Sea Board Installations.

In the year 1829 the Bassin de Commerce was put in communication with the Terneuzen Canal (which extended immediately below the Tolhuis Lock) and the opening ceremony took place in 1829 in the presence of William I., King of Holland.

Unloading quays were then constructed on the left bank of the basin or dock, and swing bridges at the two extremities on the Sas and Antwerp routes.

From plans drawn up by the architect L. Roelandt, the Entrepôt (warehouse) was erected on the left bank of the dock, the foundation stone being laid in 1841 by King Leopold I.

The Port of Ghent—continued.

Between 1866 and 1878 the capacity of this warehouse and its extensions was gradually enlarged by the construction of various unloading quays and sheds.

Little by little also the Terneuzen Canal fell off in its reputation as having failed to keep pace with the progress achieved in navigation generally, and more particularly with the steadily increasing dimensions of vessels. Negotiations were set on foot between the municipal authorities and the Belgian Government and also between the latter and the King of Holland. These were long protracted, but at last terminated successfully. It was thus in 1870 that the operations of clearing out and deepening the canal were projected, but the agreement with Holland was not concluded till October 31st, 1879.

By the stipulations of this agreement the width of the canal was to extend it to 17 metres at the water bottom and to 65 metres from edge to edge, and the water draught was to be 6½ metres. These operations, which ranked as of primary importance, included further the construction of a new lock at Sas de Gand.

By the agreement with the State, which was ratified by the Municipal Council and voted by the Chambers in 1880, the following was the scheme decided on for the enlargement of the port:—

The lock of Muide was to be dismantled and the adjacent islet was to be detached in order to construct the Bassin du Tolhuis, between the bridges of the Muide and the circular railway.

The Muide Lock at the end of the basins (after being dismantled) was to be replaced by the two locks, the one at the Tolhuis and the other above the basins in the De Pauw waterway.

The State undertook also to excavate the Bassin de l'Avant Port to a width of 80 to 100 metres to fortify it on the right bank by a quay wall 1,036 metres long, affording an anchorage of 7.5 metres, while on the left bank was to be erected a retaining wall of 487 metres length, thus forming two dry docks of dimensions equal to the greatest of the present day, namely, 130 metres in length, 13 metres in width and 5.45 metres depth of water above the entrance, and for the other 75.85 metres in length, 11 metres in width and 4.45 metres water depth.

As had been stipulated in the agreement, the town undertook on its own account the constructive works to be erected on the plateau of l'Avant Port.

A Special Committee of the Municipal Council, after examining the question of the subsidies to be granted for maritime erections, decided to construct the Bassin au Bois, along with quays and sheds, on the right bank of the Bassin de Commerce.

On September 5th, 1881, this Bassin au Bois was duly inaugurated by King Leopold II.

The Municipal Council further instructed that the depth should be increased to 5.60 metres (the present depth is 5.70 metres) and the Bassin de Commerce widened to 90 metres, its right bank (Petit Dock) being meanwhile buttressed by a quay wall so as to provide an anchorage of 6 metres.

These operations for the improvement of the canal and for the excavation of fresh basins led to a period of steadily increasing prosperity for the port. Between 1871 and 1880 the average number of vessels entering annually had been 606, and their total yearly tonnage 134,601 tons. During the period 1881-1901 the yearly average number of vessels entering the port had risen to 884 and their tonnage to 472,054 tons.

It is a paramount necessity of a sea port which does not wish to forfeit its raison d'être completely steadily to keep abreast of every improvement in transport facilities and in the handling of merchandise.

Thus no sooner had the operations of deepening and straightening the Terneuzen Canal and of constructing l'Avant Port and the Bassin au Bois been completed than the vessels these gave access to began to assume dimensions steadily increasing. Hence some further improvement of the canal and the construction of basins of greater size again became urgent.

It was in 1894 that the Belgian State, thanks to the combined efforts of the town, the Chamber of Commerce and of the factories, after long and arduous negotiations, concluded an agreement with Holland which carried out further improvements on the Terneuzen Canal. It is due to these that this canal has developed into one of the finest waterways of the world, as will be apparent from the description to be given later.

The Municipal Council of Ghent decided, on its own account, to undertake an entirely novel extension of its sea board erections, and the very ambitious scheme was due to the collaboration of Mons. Emil Braun, Burgermeester and Mons. Maurice de Smet de Nayer, President of the Association for the Maritime Interests of Ghent.

This scheme, though endorsed by the Government, was rejected by the Municipal Council on August 6th, 1900.

It included the construction of a grand basin of 2,300 metres length, 180 metres width, discharging directly into the Terneuzen Canal. On the right bank of this basin were to diverge obliquely 5 wet docks or side basins of 140 metres width and 500 metres length.

A boating canal—called the peripheral canal—forms the boundary line of the extensive industrial areas occupied by these new sea board erections, which cover a total surface of over 200 hectares (494 acres).

The realisation of this programme began with the erection of a quay wall of 2,100 metres (lengthened since by 125 metres) on the left bank of the Grand Bassin, which, as originally excavated, was 50 metres wide and of 6.50 metres water depth, provisionally.

A subsequent undertaking, planned in 1905, increased the width of this bassin to 180 metres and the depth to 8 metres below the waterline.

The same contractor excavated the third Darse (part of the present Central Wet Dock) as well as the peripheral Canal over which were thrown two rail bridges and two road bridges.

In 1908 tenders were invited for the work of excavating the 5th Wet Dock (part of the present North Dock) and of erecting 623 metres of quay wall.

Two years later, the 3rd Wet Dock (Darse Centrale) was similarly reinforced on the south side by quays extending to over 600 metres in length.

Several considerations induced the Municipal Council in 1912 to adopt a modification in the lay-out of the wet docks.

The increase in the basin anchorages, as a result of the steadily mounting tonnage of vessels was bound to be followed by enlargement of the docks, the vessels tending constantly to occupy greater and greater displacements and to require wider accommodation for the manoeuvres. An augmented tonnage necessitates also more extensive embankments, both from the standpoint of easy and practical working and of profitable returns financially.

In brief, the operating-radius of the rail connections, which was only 100 metres as originally planned, had to be increased to 150 metres as a minimum in order to avoid the serious inconveniences which experience had shown to occur in other ports. It was for these reasons that it was decided to replace the five docks originally provided by three large ones.

Profiting by the experience of the erections already made, the widths were increased to 250 metres for the North Dock, to 290 metres for the Central Dock, and to 200 metres for the South Dock.

It was then justifiably claimed that with widths of such considerable dimensions, not only could steamers tack about and moor with the utmost facility, but that it would be possible to set up in the wet docks a considerable number of stationary stages which would allow lightering vessels to unload directly.

It was in accordance with the features of this new design that the final construction work on the North Lock was carried out between 1912 and 1914.

The scheme to erect 1,100 metres of quay wall along the right bank of the grand basin had hardly been considered when the outbreak of the war arrested all progress.

The dark period of the German occupation was destined to be remembered by the cessation of all development in the port, and by open destruction and devastation, the extent of which can only be imperfectly gauged by the public.

At the time of the Armistice every bridge from the Dutch frontier as far as Ghent was lying in ruins in the waters of the Terneuzen Canal and four torpedo-boats, loaded with ferro-concrete, had been sunk in the navigable straits, as well as 26 other vessels.

Thanks to the exertions of the Administration des Ponts et Chaussées and the efforts of experienced and efficiently equipped contractors, the maritime way was finally cleared and the navigation of the canal resumed on March 15th, 1919.

Hence it proved possible to receive at the port of Ghent, on March 25th, 1919, the "Milinocket," the first deep sea steamer carrying the American flag to enter since the war. The Municipal Council had a medal struck to commemorate the occasion.

In the port itself the damages were on a still larger scale and represented cranes, quays and warehouses which war ravages had destroyed, a value roughly of 16 millions.

The principal buildings and structures destroyed included:—83 vessels and pontoons had been hurled into the waters of the port basins, as well as material of every description which had to be hauled up before the waters became navigable; the bridge of the circular railway was tumbled in in ruins above the Avant Port, as well as the Meulested Bridge below; bridges 1 and 4 on the peripheral canal were destroyed.

Every quay forming part of the new seaboard erections was stripped of its pavement, and of the 60 electric cranes which did service at the various quays of the port scarcely 2 or 3 could be of service further. In their fury the barbarians were not satisfied with merely destroying the electric equipment of these handsome hoisting machines, but had even made them jump from their metal gantries.

In consequence of the excessive weight of the sand and gravel deposits from the Rhine which the Germans piled on the various quays of the new seaboard erections, one of these collapsed

Port of Ghent.

Central Wet Dock, East Quay.

Outer Harbour: Fruit being Loaded for Exportation.

The Port of Ghent—continued.

over a length of approximately 75 metres (at the Central West Dock).

Two sheds at the Grand Bassin and another two at the Petit Dock were destroyed by fire, and also, in part, a white iron shed at the Bassin au Bois.

Lastly, to fill to the brim the measure of the damage—already quite serious enough—sustained by the seaboard erections, the fire, shortly after the Armistice, devastated the foundation of the dock warehouse and also the shed of the adjoining quay.

The reparation of all these deeds of vandalism and the consequences of the damage just recounted was what absorbed the first activities, and it is with grateful satisfaction that it may now be recorded that not only has the ground lost been recovered but that the Port is again beginning to realise the progress which the baleful war period had served only to postpone.

II.—Description of the Port as a Whole.

The port zone extends to the North and East of the town of Ghent.

The port comprises the waters, public highways, quays, sheds, storehouses and yards situated within the external and internal boundary lines specified below.

The first of these boundary lines starts at 10 metres above the De Pauw Bridge, crosses the De Pauw branch in a direct line, passes along the houses on the quay de l'Ecole, crosses the boulevard du Château, skirts the enclosure of the Champs de Manœvres Station, crosses the Chaussée d'Anvers, passes by the edifice forming the corner to the right of the Chaussée d'Anvers, of the boulevard du Petit Dock and of the boulevard d'Afrique, crosses the circular railway, skirts the railway enclosure and the Ghent boundary to the east of the Nouvelles Installations Maritimes as far as the Rue des Chantiers navals, passes along this street as far as the Ghent boundary in the north with which it coincides till it comes into alignment with the buildings along the left bank of the western arm of the Terneuzen Canal, skirts the quays de Wondelghen and de l'Industrie, keeping alignment with the latter as far as the boulevard de l'Industrie, crosses the junction canal at the Tolhuis Bridge and la Lièvre at the Customs Bridge, skirts the houses on the Sas Quay as far as the bridge du Muide, passes by the dock buildings as far as the Rue d'Anvers, runs along the houses on the Château Quay to return finally to its starting point 10 metres from the De Pauw Bridge.

The second boundary line marking off the port internally is a circuit starting at the buildings of the avenue de Terneuzen, crossing the circular railway, skirting the railway enclosure grounds as far as the Chaussée de Meulestede, crossing the avenue du l'Avant Port, following the direction east of the Rue de Londres, crossing the Place de l'Avant Port, taking the line west of the Chaussée de Meulestede to bear past the houses on the Meulestede Quay as far as the Meulestede place, whence it follows the north side of streets de la Monette and du Moulin so as to reach the Port Arthur boulevard, whence it proceeds westward as far as the Rue du Paon, crossing the latter and also the circular railway to skirt the grounds of the Bassin au Bois as far as the Chaussée de Meulestede.

The maritime erections of Ghent occupy a total surface of 484 hectares (1,195 acres). The total length of the quays is 10 km., the water surface of the basins is 82 hectares (200 acres), and the area covered by sheds totals 18 hectares (44 acres).

A distinction may be drawn between (1) the earliest seaboard works, which comprise the Bassin de Virage, l'Arrière-Bassin, the Bassin de Commerce, the Bassin au Bois, the Bassin de Tolhuis, l'Avant Port and the dry lee shores; (2) the more recent works, comprising the Grand Bassin, the Darse Nord, the Darse Central, the Darse Sud (in progress), the new dry dock (in progress).

III.—Detailed Description of the Bassins and their Erections.

I.—Bassin du Commerce.

The Bassin du Commerce, the south part of which has been designated Arrière Bassin, is enclosed partly by quays proper and partly by accessible embankments. Its length is 1,600 metres and its width varies as follows: 65 metres along 495 metres (Arrière Bassin), 110 metres along 685 metres and 75 metres over 420 metres; its superficial area is, therefore, 138,025 square metres. The anchorage varies between 5.70 metres and 6.50 metres.

The left bank (dock) has a quay length of 830 metres, the average width of which is 50 metres. The load limit for the section constructed in ferro-concrete is 3,000 kg. and there are five rail tracks. On the ground surface are the following buildings and sheds: Building A, called " Entrepôt " (warehouse), of 4 storeys, closed, of ferro-concrete and masonry, area 65 metres by 32 metres, height 20 metres. The outside walls are constructed of red brick, while the whole of the interior consists of ferro-concrete. The level of the adjacent roadway is situated at 1.20 metres above the level of the rail tracks so as to facilitate the handling of goods. The whole building may sustain a load of 10,000 tons.

The load resistance provided is 2,000 kg. per square metre on the ground level, 1,500 kg. on the first storey and 1,250 kg. for the storeys above.

On each storey level balconies are constructed in front of the large bays to allow of the passage of goods.

The entrepôt is divided into three sections, two of which are reserved for the Customs and one put at the disposal of commerce.

The building, which has been cursorily described above, comprises the new entrepôt now entirely reconstructed and laid open for public use after the disaster referred to above.

Shed L.—Special warehouse for the Customs (goods imported by sea); closed, in masonry; area 42 metres by 29 metres.

Shed M.—Branch warehouse of the Customs (for importation by rail); closed, in masonry; area 80 metres by 21 metres.

Shed N.—Railway warehouse; closed, in masonry; area 30 metres by 21 metres.

Shed 3.—Closed, with rolling gates, in wood; area 118 metres by 13 metres.

Shed 4.—Closed, with rolling gates, in wood; area 129 metres by 13 metres.

Sheds 5 to 8.—Closed, with rolling gates, in masonry and wood; area 188.50 metres by 13.50 metres.

Shed 9.—Closed, with rolling gates, in masonry, iron and wood; area 118 metres by 15.5 metres.

Loading Equipment.

Stationary luffing crane of 15 tons on the quay of Dock 2; reach over water measured from quay edge 4.70 metres; reach of crane measured from pivot 6.60 metres; maximum height of hook above water 7.80 metres, and above rail 5.35 metres.

This crane is worked by hand by the employers' operatives.

Lighting.

The stationary lighting system, called the traffic lighting, is effected along the quay by means of electric lamps of 50 candle-power distributed at regular intervals of, roughly, 30 metres.

The lighting for unloading under the sheds is furnished by stationary special installations at each loading stage of regular cables and by means of electric lamps of 50 candle-power. The operators of these lines have also in their charge a storehouse for portable apparatus, reflectors for six lamps of 50 candle-power each intended for the lighting of the bridge and of the ship docks. The apparatus may be connected at pleasure with various current terminals distributed along the sheds.

The consumption of electricity, which varies according to requirements, is registered on a meter and paid for by the firm which occupies the fixed landing stage.

The right bank—Petit Dock—possesses quays amounting in length to 1,260 metres. The maximum admissible load on the south quay is 3,000 kg. per square metre. These quays are served by five rail tracks.

On the embankment are located: Shed 13, open, in wood; area 97.5 metres by 45 metres; shed 14, open, in wood; area 97.50 metres by 45 metres.

Operating Equipment.

Six electric cranes, covered in, of 2.5 tons capacity, and two cranes of 5 tons allow two rail tracks for loading to pass under each crane.

These cranes can be electrically travelled along the quay; the reach over water measured from the quay edge is 8 metres, and the reach measured from the pivot is 11 metres; the reach on the land side measured from the quay edge is 14 metres; maximum height of hook above water 15.50 metres, and height of hook above rail 12.65 metres.

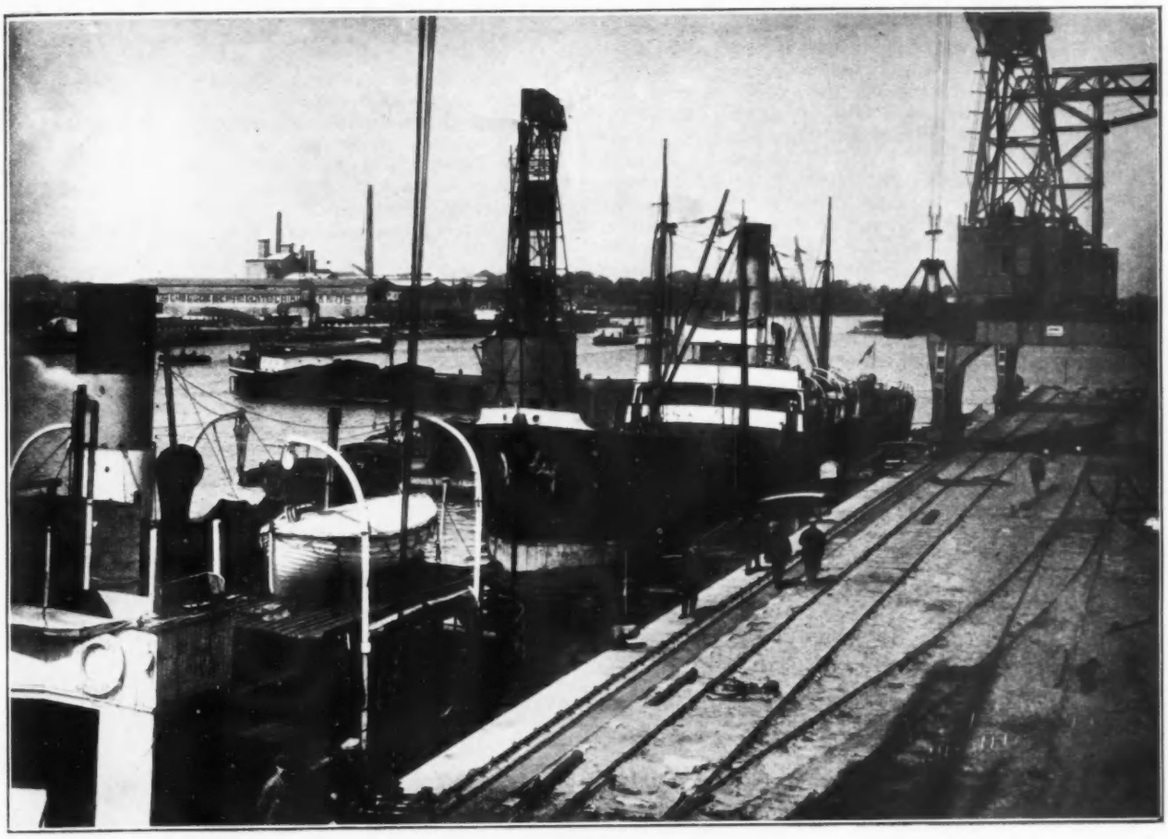
Lighting.—The stationary traffic lighting system consists of electric lamps of 50 candle-power installed along the sheds at intervals of, roughly, 30 metres, the traffic having necessitated the clearing out of all stationary supports along the embankment. The sheds are lit by means of lamps of 50 candle-power and the lighting for unloading operations consists of portable apparatus for six lamps of 50 candle-power each, which the town gives out on hire and which may be attached as desired to one of two sets of terminals installed on each crane facing the water.

II.—Bassin au Bois.

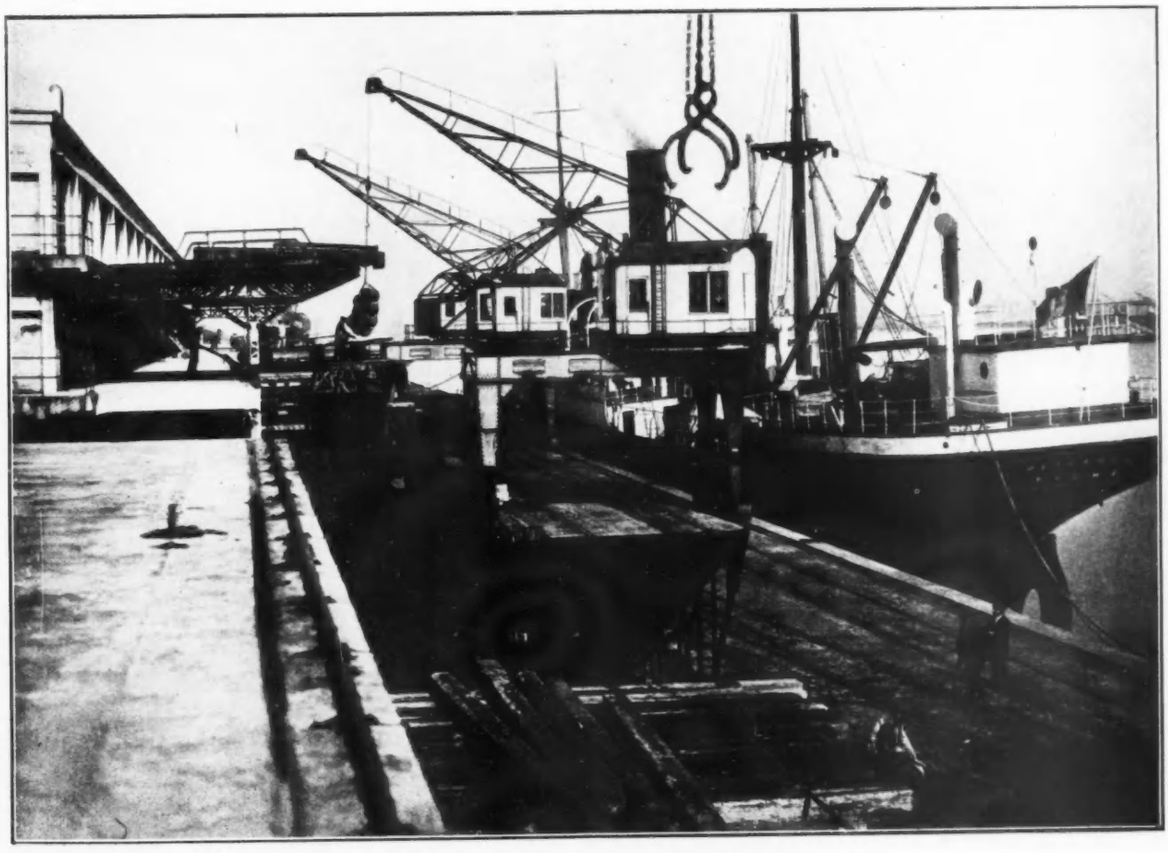
The " Bassin au Bois " is bounded by the stone embankments, the foundations of which rest, at the water level, on an earth-work of 4 metres width. On this earth-work rest also the unloading stages with straight walls. This system of construction allows steamers to unload close up to the stages and sailing vessels in front of the stone embankments.

The " Bassin au Bois " measures 230 metres in length by 125 metres in width, so that the water surface is 28,750 square metres.

Port of Ghent.



Nouveau Bassin: Right Bank of the North Mole.



Nouveau Bassin: Left Bank, 1926.

The Port of Ghent—continued.

The anchorage is 5.70 metres.

This basin possesses 585 metres of quay length, the average length being 85 metres; the land level comprises two rail tracks, a roadway of 10 metres width, and also large grounds intended for wood depots.

The following sheds are situated on the ground attached.

Shed 16.—Open, in iron; area 196 metres by 20 metres.

Shed 17.—Open, in wood on columns of ferro-concrete; area 94.25 metres by 36 metres (average).

Shed 18.—Open, in iron; area 140 metres by 20 metres.

III.—Avant-Port.

The basin of Avant Port has a length of 1,100 metres, with an average width of 90 metres, and thus covers a water surface of 102,000 square metres. The depth is 7.50 metres, and the quays measure 1,100 metres in length and 90 metres in width. On the land embankment are built 11 sheds and 5 rail tracks.

Shed 20.—Closed, with cellar and one storey, in wood and masonry; area 100 metres by 43 metres.

Shed 21.—Closed, without cellar, of one storey, in iron and masonry; area 96 metres by 43 metres.

Shed 21a.—Closed, without cellar and of one storey, in ferro-concrete; area 30 metres by 43 metres.

Shed 22.—Closed, in one storey, with cellar, in iron and masonry; area 100 metres by 43 metres.

Shed 22a.—Closed, in two storeys, without cellar, in ferro-concrete; area 36 metres by 43 metres.

Shed 23.—Closed, without cellar, of one storey, in iron and masonry; area 96 metres by 43 metres.

Shed 23a.—Closed, of two storeys in ferro-concrete; area 26 metres by 43 metres.

Shed 24.—Closed, in iron and wood; area 100 metres by 43 metres.

Shed 24a.—Closed, without cellar, of one storey, in ferro-concrete; area 26 metres by 43 metres.

Warehouse 26.—Closed, in iron and wood; area 110 metres by 14 metres.

Refrigerating Depot 26a.—In mason work; area 120 metres by 18.50 metres.

The following are the maximum admissible loads:—5,000 kg. per square metre on the paved embankment at the quay levels; 2,000 kg. per square metre on the paved floor of the vaults; 1,500 kg. per square metre on the pavement of the chaussée above the vaults; 1,000 kg. per square metre on the first storey of the metal sheds; 1,000 kg. per square metre on the first storey of the ferro-concrete sheds; 800 kg. per square metre on the second storey of the ferro-concrete sheds.

Operating Equipment.

Fifteen electric cranes, semi-enclosed, supported partly on the basement of the quay wall and partly on the shed balconies, as well as by means of an aerial ropeway system, which joins up the sheds and allows two rail tracks for loading and one cart track to pass below the crane.

These cranes, which can be travelled electrically along the quay, have a carrying power of 2,500 kg., a reach over the water of 8.50 metres measured from the quay edge, the crane reach measured from the pivot being 11.10 metres, the hook elevation being 14.80 metres above the water and 12.20 metres above rail.

Lighting.—The stationary traffic lighting system is similar to that at the dock.

The lighting of the cellars, the street level, and the different storeys is effected by means of 50 candle-lamps, distributed so as to illuminate an entire hall or merely that part of it which work in progress requires.

The lighting, which must be ordered in advance, is given gratis up to 6 p.m., and after this time it has to be paid for on the basis of the number of lamps and the time of consumption.

The lighting to facilitate unloading of the vessels is, as in the case of the "Petit Dock," effected by means of portable reflectors and two current terminals per crane.

IV.—Grand Bassin.

The "Grand Bassin" has a length of 2,125 metres and a width of 180 metres, so that the water surface area is 382,500 square metres. The anchorage is 8.75 metres. Along the quays of the right bank the depth is 9.50 metres below the water line.

The area covered by the loading and unloading quays on the left bank measures 2,095 metres in length and 85 metres in width; those on the right bank measure 1,100 metres in length with a width of 85 metres. The maximum admissible load is 6,000 kg. per square metre for the quays on the left bank and 5,000 kg. per square metre for those on the right.

There are seven rail tracks to serve the quays and the adjacent grounds.

Warehouses and Sheds.

Shed 27a.—Closed, in iron masonry and wood, 177.50 by 37.50 metres.

Warehouse 28 (in course of construction).—Closed, of one storey, in ferro-concrete, 97.50 by 38.50 metres.

Shed 31.—Closed, in wood on columns of ferro-concrete, 169 by 40 metres.

Textiles Warehouse 32.—Closed, in two storeys, of ferro-concrete, 130 by 50 metres.

Textiles Warehouse 33.—Similar to No. 32.

Shed 34.—Closed, in wood, 45 by 30 metres.

Shed 34a.—Closed, of wood, 210 by 50 metres.

Shed 35.—Closed, in iron, masonry and wood, 49 by 71.50 metres.

Shed 35a.—Closed, in wood, 72 by 50 metres.

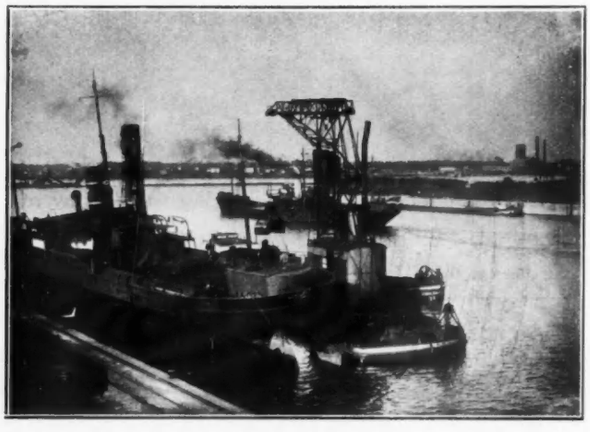
Shed 36.—Closed, in wood, 58 by 50 metres.

Warehouse 36a.—Closed, in wood, 58 by 20 metres.

The ground level of sheds 32 and 33 is constructed on a raised embankment so as to facilitate the handling of the goods, which are therefore discharged directly into the trucks and carts. The rail tracks on either side of these sheds are protected by roofs. In addition there is an ordinary cart route, which is paved and passes through the sheds lengthwise. These warehouses are specially adapted for receiving cotton, and the goods are therefore handled under complete shelter from the weather.

The cotton may be unloaded directly from the vessels on every storey, and by means of chutes and lifts the bales may be conveyed from one storey to another.

The warehouses in question may carry with complete safety the following loads:—5,000 kg. per square metre on the tar-macademised pavement of the raised ground level; 1,000 kg. per square metre on the first storey; 800 kg. per square metre on the second storey.



Nouveau Bassin. Left Bank. Floating Cranes at Work.

Operating Equipment.

Thirty Electric Cranes fully enclosed, of 2,500 kg. capacity, are at present in service. Those situated towards the town have a reach of 12 metres measured from the pivot, and the others one of 12.50 metres, but the position of the pivot, which is different for the two series, imparts to them at the same time altogether a reach of 9.50 metres above the water measured from the quay edge and a height of 16 metres above the rail measured from the axle of the pulley of the jib. The reach landwards measured from the quay edge is 14.50 metres for the 15 cranes erected towards the town and 15.50 metres for the others.

Between these two lines of cranes of 2.5 tons capacity are erected 12 cranes of 3 tons capacity and having movable jibs, the reach of which over the water may vary from 2 to 12 metres, and the maximum reach on the land side is 21.50 metres.

Two floating cranes of 11 tons capacity with automatic grabs are at present in service. Their jib is extendable and possesses a maximum reach of 18 metres.

Eight electric cranes of 2.5 tons are in service at the south extremity of the right bank quay (Riga Quay).

Lighting.—Stationary traffic lighting to illumine the sheds and the immediate neighbourhood is installed on a system similar to that at the dock.

The lighting inside the sheds is effected by means of 237 lamps of 200 candle power, which are distributed in groups, allowing a hall to be lit up either wholly or in part, as at Avant Port.

The lighting for the unloading of the ships is effected similarly by means of portable reflectors, which are hired out and joined up as desired to four current terminals installed on each crane.

(To be continued.)

Notes from the North.

Seacombe Ferry Works.

TENDERS have just been received by the Wallasey Corporation at Seacombe of the steelwork in connection with the new booking hall, a new shelter on the landing stage, the widening of the south passenger bridge, together with works incidental thereto. The contract, drawings and specification were on view for the benefit of contractors at the offices of the engineers, Sir John Wolfe Barry and Partners, Dartmouth House, 2, Queen Anne's Gate, Westminster, S.W.1, and at the office of the General Manager, Ferries Department, Seacombe. A recommendation will probably come before the next (November) meeting of the Town Council.

New Use for Slag.

Slag from a Bootle tin smelting works is being used in an endeavour to fight coast erosion at Blundellsands in the River Mersey. One effect of the recent gales has been to demolish ten yards of the unprotected cliffs, but where the slag has been tipped the sea has made no further inroads. The Great Crosby Council will go on tipping until about 40,000 tons of slag is dumped, and if necessary, will continue tipping along the coast. At present the slag is confined to the most affected region near Burbo Bank Road North and the part of the Serpentine which has been undermined by the sea. Here it is intended to make a solid bank of slag. The surveyor to the Blundell estate had 100 tons of slag tipped in April as an experiment, and it was after the inquiry into the proposed closing of the Serpentine that the Council decided to tip slag on a large scale.

An International Conference.

Liverpool members of the British delegation to the International Conference on the Unification of Buoyage and Lighting of Coasts, held at Lisbon, were the Hon. L. H. Cripps (representing British shipowners), Major E. G. Finch (Dock and Harbour Authorities' Association), Captain F. W. Mace, R.N.R. (Dock and Harbour Authorities' Association). The Hon. L. H. Cripps is a son of Lord Parmoor and son-in-law of the late Sir Matthew Ingle Joyce. He is a partner in Messrs. Alfred Holt and Co. (Blue Funnel Line). Major Ernest G. Finch was appointed solicitor to the Mersey Docks and Harbour Board in 1925. Before that, from 1900, he was assistant solicitor. Capt. Frederick William Mace, R.N.R., is marine surveyor to the Mersey Docks and Harbour Board, which he has served since 1902. He has rendered excellent service since he was appointed to his present position in 1905, particularly in regard to salvage operations. He is a foremost authority on buoyage and lighting of coasts.

Obituary.

Mr. Robert H. Pringle, who died recently at Runcorn in his 62nd year, served his apprenticeship as an engineer at the Birkenhead yard of the Mersey Docks and Harbour Board. In 1899 he was appointed by the Board to the position of mechanical superintendent at the Old Quay workshops, Runcorn, from the Manchester Ship Canal Company. It is only a few months since he retired after completing thirty-one years service.

Manchester River Works.

In the annual report of the Manchester Rivers Committee, details are given of the work of maintenance on rivers and streams. The time of the river men has been distributed as follows: River Medlock— Pin Mill Basin to Helmet Street, 52 days worked; Fairfield Street to Hoyle Street, 22 days worked; Hoyle Street to Downing Street, 49 days worked; Green Lane Basin to Charles Street, 34 days worked; Charles Street to Birley's Weir, 20 days worked. River Irk—30 days worked. On the 11th and 12th November, 1929, a flood in the River Mersey rose to the undermentioned heights above low water level:—Cheadle Bridge, 11-ft. 8-in.; Northenden Weir (on sill), 7-ft. 8-in.; Palatine Road Bridge, 17-ft. 5-in.; Darley Avenue, 15-ft. 10-in.; Withington Pump House, 17-ft. 7-in.; Stretford Overflow Weir, 14-ft. 6-in. On February 12th, 1930, the following flood heights in the Irwell were recorded:—Sherbourne Street Bridge, 10-ft. 9-in.; Waterloo Bridge, 9-ft. 3-in. River Irk outlet, 9-ft. 7-in.; Blackfriars Bridge, 7-ft. 8-in.; Albert Bridge, 6-ft. 3-in.; Princes Bridge, 5-ft. A further consolidation of weak places in the River Mersey bank has been effected, but there has been no serious disturbance of the banks during the year. The benefits accruing from constant and careful maintenance and the repair of the old standing break on the Cheshire side of the river have become apparent in decreased liability to slips, but this is to some extent offset by the increased heights of the water during floods.

Manchester Ship Canal Traffic.

Another decline is advised in the monthly traffic return of the Manchester Ship Canal Company. In September the receipts were approximately £90,486, or £15,621 less than in the corresponding month of last year. In the nine months to the end of September the receipts were approximately £982,891, a decline of £96,917 compared with last year. It must be remembered, however, that in the corresponding months of the last two years the derating scheme was not in operation, and, consequently, the company's charges had not been reduced in order to give the users of the canal the full advantage of saving in rates, which on most of the undertakings was 75 per cent.

Under-River Transport.

Mr. J. Shaw, general manager of the Mersey Railway, in an address at Birkenhead, dealt with the resolution which was recently passed by the Liverpool branch of the Industrial Transport Association calling for improved passenger and goods transport facilities on Merseyside, including (a) the extension of the present tunnel used by the Mersey Railway, so as to link up its stations with all Liverpool termini, including Riverside Station; (b) making possible the running of through trains between the stations of the Mersey and Wirral Railway systems; and (c) conveyance of goods as well as passengers by the Mersey Railway, which, under the proposed scheme, would give direct access to Liverpool docks for goods at present unloaded at Birkenhead. Mr. Shaw said the proposal that the Mersey Railway should be used for goods traffic, as well as passengers, was not a new one. When the railway was under construction in 1885 the Company obtained an Act of Parliament for two extensions of the Railway to connect it with the dock lines on either side of the river. On the Liverpool side a branch line was to run from a point on the river side of James Street Station to connect with the Railway of the Mersey Docks and Harbour Board near Waterloo Dock, and on the Birkenhead side, a branch line was to run from near Park Station and connect with the dock railway near the junction of Price Street and Corporation Road with a spur line to an adjacent depot. The estimated cost of these extensions at that time was just over three quarters of a million pounds. These powers were kept alive until 1906, when they were allowed to lapse. Owing to the exceptionally heavy gradients of the Mersey Railway, an ordinary goods train would have to be reduced in length and weight before entering the tunnel, by being divided into three or four sections, each section being taken through the tunnel separately by powerful electric locomotives; this method of working the trains in sections would cause the cost of haulage to be excessive. If the trains were passed through during normal traffic hours, owing to the risk of breakage of couplings on these grades, the passenger service would have to be temporarily suspended until the goods trains were clear of the heavy grades. The operation of putting a normal goods train through the tunnel in sections would cause a delay of 20 to 30 minutes in the passenger service, and the inconvenience caused to the travelling public would be so great as to be prohibitive. The question of using the tunnel for goods traffic during the few hours at night when the passenger service is not in operation had also been fully considered, but having regard to the heavy passenger service which is run for 19½ hours per day, the 4½ hours during the night was essential for maintenance and repair purposes of the permanent way, as owing to the lines being in a tunnel, and with the electrical conductor rails and the frequent service of trains, it was impossible for platelayers to work on the track during the ordinary traffic hours.

Master Porterage.

Mersey Docks and Harbour Board has adopted an additional master porters' rate in respect of bananas in bunches. The rate will come into operation on 3rd November if no objections are lodged with the Ministry of Transport before that date.

Seacombe Ferry as it was.

The improvements which have been carried out at Seacombe ferry are in striking contrast to the ferry approaches of fifty years ago, when the stage consisted of an erection on wheels which at high water was drawn up into a tunnel, and at low water ran down sufficiently far to allow an easy gangway on to the boat. The pay gates travelled up and down with the stage as it came in and went out. The stage being made of open planks, it followed that when there was any rough season, the water forced its way several feet high between the planks, drenching those who did not understand how the waves came in. In very rough weather, when the boats could not make Seacombe, they put in at the Wallasey Dock, which then opened in the river and was called the low water basin.

Notes from the North—continued.

Whitehaven Harbour.

The Whitehaven Harbour Commissioners have decided to pass on the benefits of de-rating to the users of the harbour by making allowances of a halfpenny per ton on ships tonnage dues, a farthing per ton on coal dues, and 6¼ per cent. on timber and general cargo dues.

Sales of Foreshore Sand and Gravel.

One profitable trading service of the Fleetwood Corporation is the sale of sand and gravel from the foreshore. During the last municipal year 681 tons of sand and 27,490 tons of gravel were sold. This produced a sum of £8,536 13s. 9d., while the expenditure in procuring the sand and gravel, including rates and income tax, amounted to £3,402 1s. 5d., leaving a surplus income of £5,134 12s. 4d. The gross profit on the Council's cement block manufacturing works amounted to £2,969 3s. 10d. As the loan charges for the year were £920 2s. 6d., the net profit was £2,049 1s. 4d. On the Fleetwood-Knott End Ferry, the gross profit amounted to £1,135 17s. 4d. Loan charges of £270 0s. 10d. resulted in a net profit of £865 16s. 6d. for the year.

Menai Suspension Bridge.

Mr. Price Davies, in the course of a paper on the Menai Suspension Bridge, which he read before the North Wales County and Municipal Engineers at Bangor, mentioned a possible site for a new bridge across the Menai Straits. "There is a need for a new road bridge over the Straits," he said, "for Telford's Bridge cannot carry the heavy vehicular transport of to-day. It belongs to the romantic days of the stage coach rather than that of the five-ton motor lorry. When this needed bridge is constructed I would pray that it be not erected near the other two bridges." There is in existence a committee representing Caernarvonshire and Anglesey appointed to push forward the claims of a new bridge. Plans were actually prepared of a concrete bridge in which the claims of utility found a more prominent place than those of beauty, and this was to have been built alongside the present bridge. These were not favourably received and probably this accounted for the fact that the Joint Committee appears to have ceased functioning. It is curious that up to the present nothing appears to have been said as to the erection of a bridge joining the two counties on another site which would not clash with the charm of Telford's structure.

Manchester Cattle Landing Places: Shipping Complaint.

At the thirty-second annual general meeting of Manchester Liners, Limited, held at Manchester, Sir Frederick W. Lewis, Bt., chairman of directors, said trading conditions had necessitated the laying up of some of the vessels for varying periods, and in addition to that many of the ships had made voyages in which a considerable part of their cargo space had been unoccupied. Notwithstanding these conditions, they purchased the "Manchester Exporter" during the year, in order to replace a vessel previously engaged in the United States service which was sold towards the end of last year, and as the "Manchester Shipper," the oldest vessel in the fleet, had outlived her period of utility and could no longer be usefully employed in the Company's services, she had recently been disposed of for breaking up. He was glad to report a resumption of the shipments of Canadian cattle. Whilst the prospect of the renewal of regular shipments of cattle to Manchester appeared to be highly probable, it was extremely regrettable that questions should arise which may deprive them of this business for want of a proper landing place. He was informed that a proposal was under consideration by which the Manchester Corporation proposed that the present landing place at Mode Wheel should be converted into a cattle market. Under the regulations of the Ministry of Agriculture, it is not permissible to land foreign cattle at a recognised cattle market, and consequently if the proposal were carried into effect, the result would be that Company's Canadian steamers would be without a landing wharf and the cattle would be diverted elsewhere. The Company had for 32 years materially assisted in creating traffic for Manchester and they had imported large numbers of cattle during this period. Some of the steamers had been specially fitted for this purpose. If the proposals to which he had referred should be given effect to, both the Company and the Manchester Ship Canal Company might be seriously affected, in addition to which the important Port of Manchester would be left without a landing place for Canadian cattle. Sir Frederick said the unofficial strike of Manchester dock labour in April last, although it only lasted for nine days, caused a diversion of a considerable amount of cargo to a neighbouring port, extending beyond the actual period of the strike. This caused considerable loss to the Company and other shipowners using the port, as well as to shippers, etc., who were prevented from taking advantage of the saving effected by shipping direct from Manchester.

Floating Tackle.

Because of the inadequate cargo handling appliances at many of the foreign ports, shipowners often find it necessary to instal their own liners with tackle ample to cope with all normal and even extra-normal demands. This is also useful in the home ports, as in the case of the Blue Funnel steamer "Agamemnon" at the Vittoria Dock, Birkenhead, recently, when a 50-ft. pinnace and lifts of fifty tons and thirty tons were hoisted on the decks. The "Agamemnon," a 10,000 tons vessel, sails to China and Japan and her last cargo included the pinnace, a fifty-ton electrical stator (for a power station at Moji, Japan), and a twenty-ton electrical stator for a station at Hong Kong. Some little anxiety was felt about the fifty-ton lift, as the "Agamemnon's" derrick was a fifty-ton derrick and, accordingly, was working at capacity. However, once all the preliminary arrangements were made and the derrick began to take the strain, the "parcel" left the floor of the shed and was safe aboard in less than a quarter of an hour. Its rate of progress was naturally slow, but everything went without a hitch. Meanwhile the pinnace, which had undergone its trials in the Gladstone Dock, was waiting in the water on the other side of the ship. Fifty-eight feet in length, it had a beam width of 12-ft. and a depth of 14-ft., and weighed 20 tons. As soon as the huge stator had been lowered on the deck, the derrick was swung over to the other side, and within another ten minutes the pinnace had been lifted clean out of the water and taken its place in its temporary home.

Poulton Bridge, Birkenhead.

There is a possibility that what is known as the Poulton Penny bridge, between Birkenhead and Wallasey, will continue to be toll-free, after the work of replacing the present Duke Street swing bridge with an electrically-controlled bridge of the bascule type is completed. According to a statement by Mr. Hignett, Chairman of the Transport Committee of the Birkenhead Chamber of Commerce, the bridge might be toll-free until the four bridges on the Birkenhead docks have been constructed. This would take eighteen months or two years. What would happen after that he could not say. It was free now because of the dislocation of traffic through the alterations being made at Duke Street.

Nearing Completion.

Probably before the end of 1931 the new Mersey Tunnel will be in full working order. The joint engineers in their latest report state that more than ninety per cent. of the work has been accomplished to date. Little remains to be done on the construction of the full-size tunnel on the Birkenhead side, while the under-river work is almost completed, save for the construction of the concrete roadway, less than one-third of which has been done. Some 51,500 tons of the cast iron lining of the Mersey Tunnel, out of a total of 52,600 tons is now in place. Altogether 1,445 men are directly employed on the whole of the work, 440 of whom are operating on the Birkenhead site.

Reclaiming Mersey Foreshore.

Fifty-two acres of Mersey foreshore is being reclaimed by the Liverpool Corporation for conversion into what will be known as the Otterspool Promenade—a fine riverside walk a mile and a half or two miles in length. Direct labour is responsible for the erection, at the north end, of the temporary embankment which is to serve as a sea wall until such time as the Mersey Docks and Harbour Board decide to develop the land still further to the northward, while contract labour is engaged, to the southward, on the sea wall proper. On the two jobs more than 270 men are now engaged. On the shore itself the temporary embankment is forging ahead. The embankment is made up chiefly of red stone debris from the Mersey Tunnel, reinforced by huge concrete blocks which are manufactured on the site and constitute the outer wall. Already a long stretch of foreshore has been enclosed, and when the river wall has been completed the mud flats will be drained off and the whole filled up with countless loads of city refuse, the use of which for land reclamation and levelling purposes had yielded excellent and economic results in other parts of the city. Up to date some 45,000 concrete blocks have been utilised on the direct labour and contract jobs, the full expenditure on which will be about £250,000. Otterspool is the only undeveloped portion of the shore which the city possesses and the Corporation is saving it from industrialisation. Mr. Brown is resident engineer of the works, and Mr. Rawlinson mechanical engineering assistant. This end of the city has been unduly favoured in regard to development schemes. From the fact that the Mersey Dock Board has extended their dock system more to the north than to the south, the north end has become more "built up." That is why at the south end the Corporation has grasped the opportunities for development.

Notes from the North—continued.

Ribble Training Walls.

The Preston Corporation Finance Committee has resolved that the Town Clerk be authorised to take all the necessary steps for the introduction in the next session of Parliament of a Bill for, inter alia, borrowing powers in connection with the Ribble Navigation Undertaking for (a) the extension of the Ribble Training Walls £110,000; (b) general purposes of the undertaking, £50,000.

Ferry Steamer's Long Voyage.

The ex Birkenhead ferry steamer "Woodside," which spent twenty-seven years crossing and recrossing the river, has been sold and will be used for ferry service in the Bermudas. Several former ferryboats have been used as tenders for ocean-going vessels. In bygone years the "Firefly" was to be seen off Brazil, and latterly the "Lancashire" left the Mersey for Galway, where she meets vessels crossing the Atlantic. Another ferry steamer, the old "Claughton," was broken up recently. For the voyage to Bermudas, the "Woodside" had her windows heavily battened, her decks were piled high with covered stores and coal, and her bows strengthened to withstand the heavy buffeting of the Atlantic. She had nothing of the trim appearance she usually possessed when transporting the thousands of passengers across the Mersey during the years she was in the service of the Birkenhead Corporation. She still retains the name of "Woodside," but her identity is rendered elusive by the cream and black funnel instead of her old red and black.

New Bromborough Dock.

The new deep water dock which is being built for Messrs. Lever Bros., Limited, at Port Sunlight, on the River Mersey, is nearing completion. Recently the sluice was opened to admit water into the dock. About 156,000,000 gallons of water were necessary to fill the dock to the high tide level of the river. After this, the entrance channel from the river was dredged. The dock, which owes its existence to the foresight of the present Viscount's father, the founder of Port Sunlight, is bound to play a great part in the future of the Merseyside industries of Lever Bros., Ltd., and allied interests. Referring to the approaching completion of the Bromborough Dock, Lord Leverhulme, who gave the order to open the sluice, said:—"Before long we shall see growing up around that dock new undertakings, and, I hope, other industries which are not represented here, and we shall see something of the greater Port Sunlight which is growing out of the Port Sunlight we have."

The waters of the Mersey were admitted through culverts from the Bromborough Pool creek or rather from a new cutting through which the firm temporarily maintains its large service. It will be some time before the dock gates, now guarded on the river side of a semi-circular dam, are opened for the admission of vessels. About £1,000,000 has been spent on this new dock, which will take vessels up to 10,000 tons. The work was first entered upon about six years ago, but contractors found the task beyond them, and for the last two years the company itself has carried on the work under the guidance of their consulting engineers, Messrs. A. J. Barry and Partners. Excavation of the Mersey bed, the building of miles of railway, the making of huge concrete blocks for the long sea wall, and much more has been accomplished, but much remains to be done inside the dock and on the new quays for the Unilever margarine factories.

The dock has an area of about twenty acres, the depth at high spring tide being 36-ft., and 25-ft. on neap tides, and alongside some quays about a yard more. Altogether the scheme covers 145 acres and has a river frontage of one and a quarter miles, the extreme width of the land reclaimed from the foreshore being about quarter of a mile. This land will be available for factories. The dock entrance is 75-ft. in width and there is a lock 160-ft. long. The deep water area of the dock is about 18 acres in extent and has an approximate average length of 850-ft., east to west, and a width of 920-ft., north to south. There are three principal quay walls, the north and south having deep water lengths of 900-ft. each and the east wall 500-ft. The lock has an overall length of 272-ft. with a clear width of 75-ft. Between the two pairs of gates the length is just under 165-ft. The gates will be operated by hydraulic power and the culverts will be controlled by both hydraulic and hand-operated sluices. The north river embankment and the south river wall have lengths of about 2,000-ft. and 3,500-ft. respectively, and each encloses an area of approximately 50 acres of foreshore. For barges—the Ship Canal, the Leeds and Liverpool, and the Bridgwater are all within easy distance—and river craft the lock will ensure passage for about three and a half hours each side of high water. Moreover between tides they will be able to berth outside the river wall on the south side of the entrance.

Mersey Lightship Service.

Mr. T. H. Hobson has just retired from the Mersey Docks and Harbour Board after 37 years' service, mostly in lightships, and for the last ten years skipper of the Bar Lightship. The latter has a crew of seven: a skipper, an engineer, and five seamen. Included in their work is the weather report "outside," which is transmitted to Liverpool as a guide to mariners every three hours. Following a month afloat comes a spell ashore, working at the buoy stores at the Herculaneum Dock. Recently Mr. Hobson gave a B.B.C. talk on "Life on a Lightship." He joined the Dock Board in 1893, serving on the steamer "Vigilant," now a grain barge trading about the Mersey and replaced by the present steamer of the same name.

Docking Delays: Court Action.

What is an arrived ship? This proved a knotty problem for the Liverpool Court of Passage a short time ago (4th October). The steamer "Varing" arrived off Garston on the 15th September, 1927, but it was not until the 28th of that month that she got into dock and discharged her cargo, though plaintiffs had only claimed demurrage for £195, being six and a half days at £30 per day. Eventually the railway company took discharge of the cargo into "main line" wagons and stored it at Widnes without any extra charge against the consignee. A legal argument as to whether the "Varing" was an "arrived ship" when she sought admission to Garston Dock and was "stemmed," or whether she only became such when she actually entered dock, ensued. Evidence having been given as to the custom of the port, the Judge reserved judgment.

A Strange Anomaly.

"It is astonishing that after the Manchester Ship Canal, with its cheap transport and distribution charges, has been open for more than thirty years, the consumers of Greater Manchester still obtain their food through London and other ports," said Mr. T. G. Mellor at the 34th annual meeting of Trafford Park Estates, Ltd. "Within 50 miles of Manchester the population consumes every year 175,000 tons of frozen and chilled meat, of which only 3,000 tons comes up the canal, with the result that the consumer is paying more than £150,000 per annum on unnecessary transport charges. With butter, bacon, and canned goods it is much the same, and the result is that very many hundreds of thousands of pounds per annum are being wasted because Manchester has practically no large importers of food stuffs such as exist at the older ports."

Shipping Trade of Canada.

Statistics prepared by the Department of National Revenue show that the numbers and registered tonnage of sea-going vessels of those nations which did the largest amount of trade with Canadian ports during the fiscal year 1928-29 were as follows:—

	Inwards		Outwards	
	No. of Vessels	Tons	No. of Vessels	Tons
Great Britain ...	12,105	15,896,982	12,300	14,968,714
United States ...	7,964	4,781,738	7,941	4,795,457
Japan	413	1,736,318	441	1,842,228
Norway	803	1,603,611	901	1,751,893

The Institute of Transport.

The Council has considered a proposal that next year, in place of a Congress in this country, a Continental Tour and Congress should be arranged and be open to all classes of members of the Institute; also that ladies be permitted to accompany members as unofficial participants.

It is suggested that the tour should take the form of inspections of Italian transport undertakings and works and visits to certain centres of transport and cultural interest in Italy; that the party should leave London on a Saturday afternoon towards the end of May or early in June, 1931, and that the tour should occupy approximately 16 days.

The following provisional itinerary has been proposed:—

London to Como, via short sea service, Basle, thence by daylight travel through the delightful scenic route—Lucerne, Brunnen, Altdorf, Andermatt, Goschenen (for St. Gotthard Tunnel), Bellizona, Lugano and Chiasso; Milan; Venice; Florence; Rome; Genoa; Turin; return to London via Paris.

While it is not possible at this date to give an estimate of the cost of the tour every endeavour would be made to arrange terms which would not be beyond the means of the younger members in particular. Two classes of travel and hotel accommodation would be available. It will be appreciated that more favourable facilities are usually procurable for a large party than for a small one.

Members desiring to make tentative reservations for the tour should write to the Secretary, The Institute of Transport, 15, Savoy Street, W.C.2.

The Humber Ports.

Opposition to Proposed Humber Bridge: Conservancy Engineer's Report.

THE project to build a road bridge across the river Humber in the vicinity of Hull continues to evoke considerable opposition from various quarters whose interests are not identical with those of the City of Hull. Apart from those, however, strong criticism as to its probable effect upon the navigable channel of the river and navigation to the port of Goole, is contained in a report prepared by the Engineer to the Humber Conservancy Commissioners (Mr. A. E. Butterfield). In the course of this, he states that the portion of the river in the vicinity of the site of the proposed bridge is one of considerable variation, and that although this variation is probably more vertical than lateral, the limited depths available render the variation serious. While the position chosen for the navigation (or central) span embraces the navigable channel operative during the past 30 years, it must be observed, he adds, that thirty years is but a small period in the history of the port and infinitesimal in the life of a river. Mr. Butterfield proceeds: "Unfortunately the site selected is the point of greatest tidal influence in the river. The Humber, narrowing at this point suddenly, enlarges immediately above, and the flood tide their becomes dissipated by the huge masses of sand in the Upper Humber and its ever-varying ebb streams. This is also complicated by the variation of the navigable channel from the south to the north side of Read's Island and vice-versa. The effect of constructing such a large number as 22 piers in the tideway at this point will, in all probability, be felt more acutely some distance both above and below the site of the bridge, and I cannot imagine any engineer with a thorough knowledge of the river Humber being willing to accept the responsibility for the irreparable damage which might easily occur to the channels both above and below the site proposed for the bridge. From a navigational point of view the proposal is equally serious. The navigable channel from the Upper Humber, whether the channel is north or south of Read's Island, approaches the site of the proposed bridge at an angle of 65 degrees, and although a span of 900 feet appears at first to be ample, yet it must be remembered that at this point the river is 6,400 feet wide and that in hazy or foggy weather it would be difficult to make the navigation span with either confidence or safety. It is well known that steamers often navigate late on the tide when the current is strong and the depth of water reduced, thus making vessels difficult to handle. A large amount of river and inland traffic with long tows also comes down late on the tide, and the risk caused by the presence of some 22 piers right across the river is one which can only make what is admitted to be a difficult navigation more difficult still."

Mr. Butterfield concludes with the remark that the proposal is full of dangerous possibilities, and one which he can only view with considerable alarm. However desirable the proposal may be from the point of view of road transport, in an important river like the Humber the interests of navigation must be paramount.

The Works Committee recommended that the Engineer's report be sent to the Minister of Transport, that a Special Committee be appointed, and that the opinion of a consulting engineer be obtained.

Mr. R. H. Farrah, who represents the Hull Corporation on the Humber Conservancy Board, moved at the recent meeting that the minutes be referred back for further consideration, but this was not accepted and the minutes were duly confirmed. Mr. Farrah said that his view was that nothing should be done to involve the Board in any expense until the Committee's minutes were confirmed. The Humber bridge, he went on, was going to be a great acquisition and a national asset. A good deal had been heard about the possibility of the piers of the bridge altering the current and interfering with navigation. It had been assumed that the Humber Conservancy was the only body concerned about the navigation of its river, but that was absurd; the Hull Corporation was much concerned with the navigation of the Humber and the welfare of the city as any other body. He felt absolutely certain that if a referendum were taken the decision would be quite different from the views held by members of that Board. At present, Mr. Farrah added, it looked as if the whole weight of the Humber Conservancy was going to be thrown against the project, plus the Aire and Calder Navigation.

The Chairman (Mr. J. H. Fisher, J.P.): The Conservancy has not yet decided its position.

Mr. Farrah replied that he was convinced in his own mind that the bridge would be no impediment to navigation. The Minister of Transport realised the national importance of the bridge as shown by the offer to contribute 75 per cent. of its cost. The present was an opportunity which, if missed, would not recur for many decades.

The Goole Urban Council have passed a resolution "viewing with alarm the proposed erection of a bridge over the Humber, feeling assured that such an erection can only prove a great danger to the very existence of the port of Goole," and pledging support to any steps taken in opposition to the scheme. One of the members (Mr. S. G. Bevan) remarked that to close up the port of Goole would mean that the town would become a village in a very short time. A conference with the Aire and Calder Navigation and other bodies was suggested with a view to the unification of the opposition to the Bill which the Hull Corporation is to promote in the ensuing session in Parliament.

Improvement of Bridlington Harbour.

The scheme for the improvement of Bridlington Harbour has already been taken in hand by the contractors under the direction of Mr. A. C. Mitchell, M.Inst.C.E., Middlesbrough, Consulting Engineer, and Mr. J. B. Earnshaw, Resident Engineer. On the side of the harbour devoted to the fishing industry a wooden wharf is being built between the two offshoots from the shore. This is on piles and measures 247-ft. in length. The original pier behind the new wharf is being levelled and concreted, and over this a new market is being erected with a covered-in pavilion of 90-ft. This work is near completion and following this a new jetty from the north pier will be taken in hand. This will be 30-ft. longer than the old jetty and will be specially constructed for the accommodation of the pleasure boats and a landing platform for the use of rowing boats at low tide. The contract for the carrying out of the entire scheme of improvements has been placed with Messrs. Holloway Bros., of London and Newcastle, the total cost being £9,423 15s. 1d.

Bridlington Harbour Commissioners.

At the meeting of the Bridlington (East Yorkshire) Harbour Commissioners, a protest from 28 Bridlington boatmen against the increase of harbour dues from 35s. to £5 per year for cobles used for fishing and pleasure passenger-carrying was considered. The boatmen asserted that they were finding it practically impossible to make a living and that the past "season" had been the worst ever known. Mr. J. Champlin, one of the fishermen representatives on the Board, said that the boatmen had lost their trade of carrying out bunker coal and provisions to vessels held up in the Bay, to which Mr. Charlesworth (Chairman of the Works Committee) replied by saying that when a ship was charged 20s. per ton on bunker coal it was not surprising that trade had been lost. Mr. M. Lawson said that the Bridlington charge for this type of coble was extremely reasonable when compared with the Scarborough charge. Bridlington Commissioners in the past had been ridiculous in the eyes of all public bodies for the charges they made, and because of their leniency in this direction they had found it very difficult to get financial help from the Government. A proposal to reduce the new charge to £4 per year for half-decked fishing and pleasure cobles was heavily defeated.

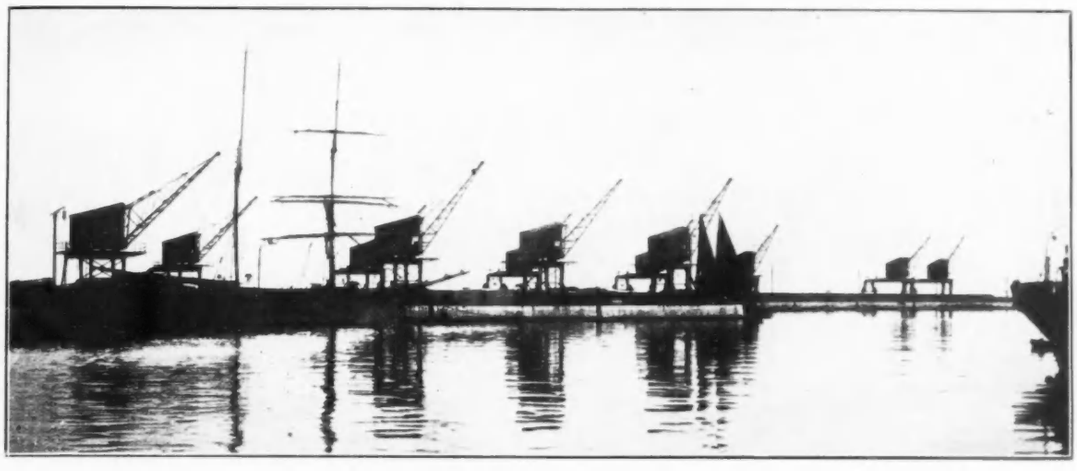
British Empire Trade Exhibition, Buenos Aires, 1931.

The London Office of the British Empire Trade Exhibition, Buenos Aires, 1931, has received a cable from Buenos Aires stating that the new Argentine Government have consented to issue an official decree giving protection to all patents, trade marks, etc., unregistered in the Argentine, for a period of six months and covering the duration of the exhibition.

Patents and trade marks belonging to exhibitors have so often been the subject of piracy by unscrupulous persons, prior to such exhibitions that the value of this concession by the Argentine Government is incalculable to exhibitors and intending exhibitors in fully protecting their interests, and the goodwill wrapped up in trade marks, brands, etc.

As a token of goodwill towards the exhibition and a desire to further trade relations between the two countries, no finer gesture could be made by the new Argentine Government, whose attitude towards the British Empire Trade Exhibition appears even more benevolent than that of its predecessor.

Jugoslavian and Near Eastern Port Matters.



Sussak Harbour.

FOLLOWING the statistics which have been published in connection with shipping at Greek ports, it is understood that during the period from January 1st to July 30th, 1930, 1,555 steamers, representing 2,493,448 net register tons, arrived, and 1,120 steamers representing 1,925,224 net register tons cleared from Greek ports. Among the ships arrived there were 914 ships representing 1,489,713 net register tons flying foreign flags; 471 ships and 1,055,340 net register tons under the Italian flag; and 130 ships and 276,650 net register tons under the British flag.

Of the ships cleared, 818 and 704,523 net register tons were foreign, and among them were 107 ships representing 180,082 net register tons British; 419 representing 956,972 net register tons Italian.

Trade during the month of August, 1930, was:—Imports 586,062 tons, and exports 584,718 tons.

In connection with the situation of Jugoslav ports, it may be mentioned that the Jugoslav authorities are still considering the opportunity of making out of Sussak, Martinschizza and Bakar a single harbour system. From a technical point of view and from the point of view of the interest of the manufacturers of mechanical handling facilities to supply their goods, the question assumes a rather noteworthy importance, especially when it is considered that if the Jugoslav authorities are delaying the realisation of this project, it is due exclusively to the lack of funds. What is doubtful is the fact as to whether such enlargements would pay, as it should not be forgotten that even if Sussak doubles its present shipping (500,000 tons) the hinterland could offer sufficient shipping for such a large port. On the other hand, the repair works in the Thaon de Revel Dock of the Port of Fiume, which is the free zone rented to Jugoslavia, and which has been kept idle until at present, have now been commenced. There is reason to believe, therefore, that the Jugoslav authorities are considering the possibility of starting the operation of this free zone. In the meantime, however, active dredging has been started in the port of Sussak. It has also been announced that the Jadranska Plovidba d.d. have ordered from British yards two ships of 1,800 gross tons each, while at Kiel the s.s. "Prestolonaslijednik Petar" is nearing completion, which next season will ensure, together with the s.s. "Karadjordje," the express mail service between Fiume and Sussak.

Another important factor of the activity of Jugoslav ports is the fact that Jugoslav authorities have taken up the opportunity of organizing free zone warehouses authorized to issue warrants, and that efforts are being made to neutralise the influence of the competition of Danube shipping on the trade of Dalmatian ports, and for this purpose a meeting has been held at Ragusa, but the greatest progress will be made in this respect when the railway connection between Belgrade to Split and Kotor will be completed.

The revival of trade at Russian ports has shown a general progress and the creation of a regular Russian service from the Black Sea ports to Trieste and Fiume, and of a Turkish service from Izmir to Genoa and Marseilles, is being considered.

At Constanza a cereal silo has been opened with a capacity of 4,000 carloads, which means about 40,000 tons, and the construction of the maize warehouses have made considerable progress. In connection with these improvements at Roumanian ports, it is announced that the Roumanian State Shipping Department has decided to increase sailings to Alexandria and other Mediterranean ports.

Regarding the development of foreign shipping in Turkish waters, the following schedule showing the participation of foreign flags during 1920 to shipping at Istamboul, which is the main Turkish shipping centre, may give an idea of the situation:—

	Ships	N.R.T.
British	1,213	2,792,710
Italian	1,487	3,558,789
Turkish ...	1,448	1,406,714
Greek	897	1,248,038
French	353	922,047
Norwegian ...	292	841,352
German ...	352	683,320
Russian ...	301	680,707
Roumanian ...	335	507,950
Dutch ...	223	423,445

The large tonnage under the Norwegian flag is owing to the fact that in 1929 there was a large number of Norwegian tankers through the Bosphorus and that the Norsk-Levant Linije has just started the new service between Bergen and the Black Sea ports. The situation of shipping in the whole Levant in general is closely connected with the situation of the various harbours, as until recently in practically every port unloading has been done with lighters from the steamers moored stern to quay, so that it has been impossible to favour the development of regular services with overseas markets. On the other hand, the unsettled political situation which has prevailed in certain quarters has not favoured the development of shipping much, and it can be seen that the lines operating regular mail services between Greek ports and New York have asked for a subvention from the Greek Government to be able to maintain the line. It is a fact that at certain Levant ports Italian and French ships trading between Italian and North and South American ports have recently taken up important cargoes of dried figs and grapes, thus showing how difficult competition is in the Mediterranean.

On the other hand Near Eastern Governments have in the course of the past few years decided to place on passengers calling at their ports a tax on the amount of the ticket, and this has kept tourists away from certain harbours.

According to cables from Alexandria (Egypt) shipping at that port during the period from January to September, 1930, included the arrival of 1,201 ships representing 2,037,585 net register tons against 1,264 ships and 3,089,870 net register tons during the two first quarters of 1929. The following is a schedule of the various flags which have participated in the Alexandrian shipping during the period under review:—

	Ships	N.R.T.
British ...	295	715,107
Italian ...	265	725,375
French ...	113	493,545
Greek ...	162	299,545
American ...	86	167,264
German ...	85	155,287
Belgian ...	27	64,337

It is understood that Italian harbour engineers have recently visited Alexandria and Port Said with the object of studying further port improvements, while negotiations have been going on between Egyptian harbour authorities and Italian manufacturers of cranes and small electric carriages for harbour transport, with the object of supplying such machinery to Egypt.

North-East Coast Notes.

Report of Tyne Improvement Commission's Deputation.

THE deputation of members of the Tyne Improvement Commission which recently visited Antwerp and Rotterdam, has issued a report. The deputation, which was headed by Lord Kirkley, the Chairman, consisted of fifteen members. They were shown round the port of Antwerp by Mons. K. Bollengier, Chief Engineer and Director, and a very close inspection made of the works. It was stated that about 50 per cent. of the vessels which use the port were under the British flag. The party, with the exception of Lord Kirkley, who had to return to London in consequence of a pressing engagement, three days later visited Rotterdam, where the works were examined. Members were shown an opening bridge which carries rail traffic. It is lifted vertically, and leaves a clear headway for ships of 160-ft. at low water, and a passage-way of 160-ft. in width. This was of more than passing interest to the Commissioners in view of the proposal which they have made to the authorities for the substitution of the present road and rail bridge over the Tyne at Scotswood by an opening bridge capable of carrying both road and rail traffic.

Election of Representatives on the Commission.

The triennial election of representatives of shipowners, coalowners, and traders to serve on the Tyne Improvement Commission has just been held, and all the retiring members have been returned without opposition. The nominations were: Shipowners—Messrs. H. P. Everett (Deputy Chairman of the Commission), R. S. Dalgliesh, Robert J. Thompson, W. A. Souter, and T. E. Brown; coalowners—Messrs. Francis Priestman, J. G. Joicey, F. R. Simpson, T. G. Taylor, and Sir Arthur N. L. Wood; traders—Lord Kirkley (Chairman of the Commission), Mr. J. E. Tulley, Sir Arthur M. Sutherland, Mr. M. M. Mein, and Mr. David T. Hobkirk.

Trade Statistics.

The depression in the coal trade was reflected in the Tyne Commissioners' latest reports of coal shipments from the Tyne during the past two months submitted at the last meeting. These showed that the total coal and coke shipped to the end of August was 11,551,573 tons, as against 13,037,020 tons in 1929, and 13,356,532 tons in the corresponding period of 1913, the decreases being 11½ per cent. and 13½ per cent. respectively. During the past eight months 5,197 vessels took on board 1,243,540 tons of bunkers, as against 5,737 vessels and 1,398,716 tons in the corresponding period last year—a decrease of 540 ships and 155,176 tons. Mr. R. S. Dalgliesh said the drop of one and a half million tons in the Tyne coal shipments was made up of a reduction of 650,000 tons from Northumberland and 850,000 tons from Durham pits. Mr. H. P. Everett, who presided, said the amount of laid-up tonnage in the river was a source of grave anxiety to industry, and was reflected in the authority's revenue. The amount of the idle tonnage at the end of August was the highest ever recorded. In September, however, a few vessels got away. The idle vessels at the end of August numbered 112 of 198,796 tons, an increase of nearly 21,000 tons on the previous month. A year ago there were 24 vessels laid up, of 25,945 tons.

The returns of other trades (apart from coal) in the Tyne show that the importations of petroleum spirit had decreased during the past eight months by 1,390 tons, the quantity imported having been 20,860 tons. The merchandise handled at Northumberland Dock for the past eight months totalled 5,132 tons, or more than double last year's total. The figures for the Albert Edward Dock were 110,974 tons, an increase of 15,948 tons on last year; the two together show an increase of 19.17 per cent.

Blyth and Hartlepool Figures.

At the last meeting of the Blyth Harbour Commission, Mr. R. M. Sutton presided. It was reported that arrangements had been made with the Post Office for additional telephone kiosks to be fixed, one at the North Side Staiths and the other in the South Harbour. A statement submitted showed the coal exports for the eight months ended August 31st, 1930, as being 3,195,854 tons, compared with 3,679,043 tons in 1929, and 3,152,175 tons in 1913. This shows a decrease of 13 per cent. on the 1929 figures, and an increase of 1 per cent. on the 1913 figures.

A slight decrease in coal shipments from the Hartlepools compared with last year was reported at the meeting of the Hartlepool Port and Harbour Commission. The engineer (Mr. J. W. Goldson) said the coal exports for the eight months of the year were 2,129,755 tons, a decrease of 94,196 tons compared with the first eight months of 1929. The Chairman (Mr. W. Ropner) said they regretted that coal shipments were down, but they compared favourable with other ports, and on the whole they should be satisfied.

At the last meeting of the Tyne Improvement Commission the Chairman intimated that after consultation with the Deputy Chairman of the Board it had been decided that at an early date the General Manager, Mr. Richard Aughton, should visit France, Italy, and ports in the Adriatic, and that the Assistant General Manager should call upon coal and grain importers in London in the general interests of the trade of the port.

Reconstructing Gateshead Quay.

The work of reconstructing Gateshead quay, which collapsed several months ago, has been commenced. Sir Arthur Sutherland, Chairman of the Tyne-Tees Shipping Co., speaking at the annual meeting of the Company, said: Gateshead Corporation have at last commenced rebuilding the collapsed quay at Gateshead. They have driven a hard bargain with us, we having to pay them a premium of £10,000 and taking over a liability of an annual rent for 25 years. I hope that when the new quay is completed, which will be in about a year, we will be able to bring new trade to this river which will warrant us in this venture. The work had been rendered more than ever necessary by the collapse of a further section in the middle of September, so that little of the original quay remained.

The Wear.

The Sunderland deep water quay scheme has received the approval of the Government. Grants will be made by the Government of the whole of the interest on the estimated expenditure until the completion of the works, and 50 per cent. of the interest for a further period of 12, 13 or 14 years, according to the date of the commencement of each section of the work. The latest returns of the coal trade show that the eight months shipments totalled 3,118,872 tons compared with 3,375,555 tons for 1929 a decrease of 8 per cent. Coke shipments for the period at 54,900 tons showed a 4 per cent. increase. The total general imports for this year so far were 258,688 tons, compared with 242,912 tons in 1929. Exports, apart from coal and coke, totalled 56,578 tons, compared with 36,024 tons in 1929.

Quick Despatch.

Three other instances of smart work have come to hand on the Tyne, Wear and at the Hartlepools. The steamer "Kalimbe," owned by Messrs. Maclay and Macintyre, Ltd., of Glasgow, commenced loading at Pelaw Main Staiths on Tyne on the 18th September, at 3 p.m., and completed on the 20th, having shipped 6,900 tons of cargo and 1,200 tons of bunkers in 48¼ hours.

The steamer "Afterglow" arrived at the Wearmouth Staiths, Sunderland, on September 23rd, at 6.15 p.m., and finished loading at 9.10 p.m., having taken on board 1,282 tons of coal at the rate of 427 tons per hour.

The steamer "Thala" arrived at Hartlepool Docks at 1 a.m. on September 19th, and sailed at 3 p.m. on September 20th, having loaded 6,679 tons of coal and 582 tons of bunkers.

Personalia.

During the past month no fewer than four personalities well known in the commercial life of the North-East Coast have been removed by death. Mr. Arthur Scholefield, a former Chairman of the Tyne Improvement Commission, died at the end of September. For a long period of years he had been associated with shipping, and was a director of the North-Eastern Railway, as well as several local companies, and was closely identified with Newcastle Chamber of Commerce. In the early days of October, Mr. J. H. Beckingham, also associated with the Tyne Improvement Commission and the Chamber of Commerce, passed away. Mr. John Cargill Hunter, Secretary and fitter of the Ryhope Coal Co., and Mr. Rudolph Knothe, formerly a partner with his brother in the firm of Albert Knothe, coal exporters, also died.

* * * *

Mr. J. Ramsay Gebbie has been appointed yard manager to Messrs. William Doxford and Sons, Ltd. Formerly he was technical manager to the Northumberland Shipbuilding Co., Ltd.

* * * *

Mr. William Story, Secretary and fitter to the Bedlington Coal Co., Ltd., Newcastle, who has been in the service of that undertaking for 56½ years, has just retired.

* * * *

Captain James B. Leask has just vacated the position of dock-master and harbour superintendent at Sunderland, after

North-East Coast Notes—continued.

more than 35 years' service with the River Wear Commissioners. Captain Leask was in command of the steamer "Duchess of Fife" when he received his appointment at Sunderland. He was born at Aberdeen. At a gathering subsequently, Mr. F. Humble, general manager of the Wear Commission, handed over to Captain Leask a mahogany bureau on behalf of the Commissioners' staff and friends, while Foreman Charles Cook, in the name of the dock staff, presented the Captain with a chiming clock.

New Service between Newcastle and Dordrecht.

The Tyne-Tees Shipping Co., Ltd., is developing its services. The directors have decided to run a new fortnightly service between Newcastle and Dordrecht. The directors are also contemplating opening out a new service between Newcastle and Danzig. The free port is an important outlet for Polish coal. There is also a very large general trade, and it is in this that the Tyne-Tees Shipping Company's steamers are probably to take a part.

Ceylon Harbour Affairs.

Port Trust for Colombo again under consideration.

THE question of a Port Trust for Colombo has once again come into the limelight as a result of the Government's appointment of a Committee to consider the desirability of a Port Trust being established in Colombo.

The last time the idea of a Port Trust for Colombo was raised was when the Ceylon Chamber of Commerce appointed a sub-committee to go into the question. The sub-committee, as is known, reported in favour of the creation of a Port Trust for Colombo. That was nearly a year ago.

The appointment of a Committee by Government, after a long interval of inaction on its part regarding this project, is considered in many quarters as an attempt by the Government to meet the wishes of the Ceylon Chamber of Commerce, especially in view of the imminence of the reformed constitution for Ceylon. According to the Donoughmore Scheme, the Port of Colombo will be under the control of a Minister of the State Council, but if the Port were governed by a Port Trust, then it will be outside the jurisdiction of the new State Council and its Ministers.

History of the Movement.

The proposal for a Port Trust for Colombo has been a pet idea of the Ceylon Chamber of Commerce since 1911. The Government then took up the cry, and Sir Henry McCallum appointed a Commission under the chairmanship of Sir Hugh Clifford (then Mr.) to report upon the condition of Colombo Harbour and to devise a scheme for the future administration of the Port. The Commission recommended, among other things, the Constitution of a Port Trust for Colombo, but Sir Henry McCallum disapproved of the proposal and in his turn put forward a scheme to the Secretary of State for the Colonies for the formation of a Port Commission for Colombo, which the Secretary of State approved.

It may not be out of place to recapitulate here the recommendations of the Clifford Commission, since they are likely to prove the basis of the construction of a Port Trust, if it is established in Colombo.

As regards the composition of the Authority or Trust, the Commission recommended as follows:—

(1) A Board composed of official and unofficial members. (2) A Chairman who shall preside at the meetings of the Board, act as its principal executive officer, and conduct with the Government and the public all correspondence relating to the affairs of the Port of Colombo.

The Commission further recommended that the Chairman should be in the first instance a Civil Servant of the First Class. With regard to the Constitution of the Authority the Commission recommended that it be composed as follows:—

(1) The Principal Collector of Customs, who should in the first instance be Vice-Chairman of the Authority. (2) The Director of Public Works. (3) The General Manager of the Ceylon Government Railway. (4) The Master Attendant. (5) The Drugs (then the P.C.M.O.). (6) The Resident Engineer of the Port. (7) The Mayor of Colombo. (All these members of the Authority to be nominated by the Governor). (8) Six unofficial members, of whom five should be nominated by the Chamber of Commerce, and one by the Governor to represent Ceylonese interests.

Unofficial Representation.

Of course, the recommendation regarding the representation of unofficial interests is bound to be considerably modified in favour of greater representation for Ceylonese commercial interests, which have expanded immensely in recent years.

As regards the terms of office, the Commission recommended that the official members of the Authority should hold their seats during the Governor's pleasure, while the unofficial appointments should hold good for a period of three years.

Among the other recommendations of the Commission were that the Authority should have power to appoint its own officers and to fix their salaries and conditions of service, subject to the approval of the Government; that the Authority be given grants-in-aid until such time as the revenues of the Port are sufficient to meet its requirements.

As regards the revenue of the Authority the Commission proposed that it should be derived from the following sources: Harbour and tonnage dues, pilot fees, patent slip and graving dock fees, warehouse rent, rents of lands, buildings, basins, commission on coal salved, fees for using tugs and cranes, fines and penalties, etc.

Ceylon's Foreign Trade.

A big drop in imports and a slight rise in exports are features of Ceylon's foreign trade in July, as reflected in the Customs Returns. The value of imports fell by over three million rupees, as compared with the previous month, and reached the lowest level recorded for several years.

Imports in June were valued at Rs.26,234,054. Their value in July was Rs.23,198,951. Food, drink and tobacco show the greatest decrease, the value of imports under this head having fallen by Rs.2,818,855 since June. Raw materials show a drop of Rs.110,251, and manufactured goods a drop of Rs.106,867.

The value of exports shows an increase of Rs.1,261,376 in food, drink and tobacco, which includes tea, coconut and copra. In raw materials, including rubber, there was a drop of Rs.896,221. The value of rubber exports in July was Rs.2,276,229, and in June Rs.3,026,174.

Import duties in July yielded Rs.3,355,032, as compared with Rs.3,212,857 in June, thus showing that although the total value of imports dropped considerably, there was no corresponding fall in the revenue. Export duties, however, showed a decrease, being Rs.985,532 in July, as against Rs.1,009,436 in June. The nett decrease in revenue from import and export duties during the first seven months of 1930 as compared with the same period last year is Rs.1,714,497.

Colombo Port Commission Matters.

The Anglo-Persian Oil Company, Limited, to whom permission was recently granted to sub-lease to the Anglo-Persian Oil Company (Ceylon), Limited, the two allotments of land leased to them in the non-dangerous section at the Kolannawa Oil Installation Depot, and at Bloemendhal Measuring Tanks Depot, have decided not to carry out the sub-lease in question.

The three moorings required by the Government Railway Department for their lighters opposite the Railway coaling grounds are to be laid at a cost of Rs.8,208, the position of these having been approved by the Master Attendant.

The three new foamite generators recently obtained to cope with oil fires have been tested and installed, one at the Graving Dock Guide Pier, one on the Duty Tug, and one on the Stand-by Duty Tug.

The erection of sixteen single men's quarters at Mutwal has been completed, and the buildings have already been occupied from August 1st.

Colombo Harbour Dredging.

During July the dredger "Sir William Matthews" was engaged in dredging over the site of mooring No. 25 till July 3rd, when she was docked for hull cleaning and painting. She was undocked on July 15th, and she resumed dredging on July 17th. On July 23rd a shaft of her forward manoeuvring winch broke, and consequently further dredging had to be stopped till a new shaft was made in the workshops. During the month, however, a total quantity of 10,400 cubic yards of dredged material was removed and deposited at sea.

The Port of New York.

Latest Data issued by the Bureau of Commerce.

Vessel Movements in Foreign Trade.

THE number of vessels entered and cleared in foreign trade at the Port of New York during August, 1930, was less than a year ago, the aggregate net tonnage, however, being higher, as has been the case for the last few months.

	1930 (August)		1929	
	Number of Vessels	Vessel Tonnage	Number of Vessels	Vessel Tonnage
Entrances ...	551	2,716,668	607	2,613,778
Clearances ...	586	2,855,323	643	2,832,830

Value of Foreign Commerce at the Port of New York.

The downward trend in the value of foreign trade of the country continues. At the Port of New York imports and exports during July, 1930, were $198,060,000 as compared with $336,060,000 during the corresponding month in 1929, being a decline of $138,000,000, or 41 per cent.

Imports were $99,990,000 as compared with $166,771,000, a decrease of 40 per cent., and exports were $98,070,000, a decrease of 42 per cent.

Grain Exports.

Exports of grain, both domestic and Canadian, at the Port of New York during June, 1930, amounted to 5,702,000 bushels as compared with 6,954,000 bushels in the corresponding month last year, a decline of 18 per cent.

Domestic grain declined from 605,000 bushels in June, 1929, to 213,000 bushels in June, 1930, a drop of 65 per cent., due mainly to a decline in exports of 236,542 bushels of barley.

Canadian grain in transit declined from 6,349,000 bushels in June, 1929, to 5,489,000 bushels in June, 1930, a drop of 14 per cent., due, as in domestic grain, mainly to a decline in volume of barley.

	June			
	1930 (Bushels)	1929 (Bushels)	Net Change Amount	Per cent.
Through the Port of New York—				
Domestic and Canadian Grain	5,702,000	6,954,000	—1,252,000	—18.0
Domestic Grain	213,000	605,000	—392,000	—64.8
Canadian Grain	5,489,000	6,349,000	—860,600	—13.6

Commerce at Port Newark.

The volume of water borne commerce at Port Newark during the month of August, 1930, was in excess of the same period last year, due mainly to increased receipts of sand and gravel.

Receipts of lumber continued to be less than a year ago, being 15,452,000 board feet as against 41,555,000 board feet in 1929, a decline of 63 per cent. General cargo, under which heading sand and gravel is included, increased from 9,218 tons in August, 1929, to 24,297 tons in August, 1930, being an increase of 164 per cent. The above commerce was delivered in 58 steamers, lighters and barges.

New York Stands First in Serving the Nation's Foreign Trade.

A recent report of the United States Shipping Board showing the foreign trade tonnage handled through the leading ports of the United States confirms the epigram that: "There are two sorts of seaports along the Atlantic Coast—New York and all the others."

During the twelve month period ending December 31st, 1929, the Port of New York handled for American importers and exporters over 27,000,000 tons of freight, an amount exceeding all other Atlantic ports combined, and equalling approximately the aggregate tonnage handled through the ports which hold 2nd, 3rd, 4th and 5th ranking in the Nation's trade in the wake of the Port of New York.

The ten ranking ports shown in the Shipping Board's survey handled tonnages as follows:—

	1929 Tonnage	1928 Tonnage
New York, N.Y.	27,177,993	26,110,166
New Orleans, La.	8,207,797	8,182,141
Baltimore, Md.	7,137,023	5,887,024
Los Angeles, Calif.	6,738,846	6,340,388
Philadelphia, Penna. ...	6,071,341	4,810,761
Houston, Texas	3,940,876	3,836,633
San Francisco, Calif. ...	3,676,232	3,680,806
Buffalo, N.Y.	3,192,851	6,700,588
Boston, Mass.	2,725,055	2,491,150
Toledo, Ohio	2,291,679	1,980,351

Homeward Bound Tourist Rush.

On September 8th four steamers belonging to one company arrived with 3,089 passengers homeward bound. On account of the homeward rush of all tourists, all incoming vessels are crowded to capacity. Many of the lines have put on extra tonnage to take care of these bookings.

Steamship Passenger Traffic via Port of New York.

During the month of July there was a falling off in the number of passengers carried in and out of this port by those steamship lines operating in foreign service. Whereas this traffic totalled 115,229 passengers in July, 1929, only 108,149 were carried in the same month this year, a decrease of approximately 6 per cent. Incidentally, the most of the decrease took place in the outbound movement, as indicated in the following table:—

	July 1930	July 1929
Inbound		
Aliens-Immigrant ...	8,203	11,146
Non-Immigrant ...	10,557	11,355
U.S. Citizens	30,189	26,937
Total ...	48,949	49,438
Outbound		
Aliens-Emigrant ...	3,125	3,483
Non-Emigrant	16,649	15,938
U.S. Citizens	39,426	46,370
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Inbound and Outbound Total	108,149	115,229

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Over the domestic routes it is worthy of note that the number of oil tankers using the Port of New York continue to show a substantial increase over last year, particularly in the coastal trade.

The peak day of the month was Saturday, August 9th, with a total of 104 sailings. Of these, 58 were in foreign service and included 10 to the United Kingdom, 9 to North European ports, 13 to Caribbean-Mexican ports, 3 to the Dutch East Indies, and 3 tankers. The 46 domestic sailings included 3 to the Pacific Coast, 11 to Atlantic and Gulf ports, 4 tankers and 2 coal carriers.

Rates for Dry Docking.

A recent announcement by the United Dry Docks, Inc., and Todd Shipyards Corporation is to the effect that dry docking rates in New York were to be increased beginning October 1st from 5 cents per ton to eight, twelve and sixteen cents, depending upon the size of the ship.

According to the new rates, vessels from 2,000 to 10,000 gross tons will pay eight cents a gross ton for docking and eight cents for each lay day. Larger vessels will pay twelve cents a gross ton for docking and ten cents for each lay day. Charges at other ports are:—Boston, fifteen cents per gross ton for docking days and twelve cents for lay days; Philadelphia and Hampton Roads, twelve cents per gross ton for docking and ten cents for lay days; New Orleans, Mobile, Galveston and Pensacola, twenty cents for docking and fifteen cents for lay days. The new rates at New York are, therefore, still lower than at other United States ports.

New York State Barge Canal.

Wheat movement over the Barge Canal from the Great Lakes to the seaboard during August aggregated almost 7,000,000 bushels. Up to September 6th the total traffic on the canal system this year was 2,555,608 tons, a gain of 796,203 tons over the corresponding period last year. Advance bookings indicate that the season will close with a record total of approximately 3,500,000 tons.

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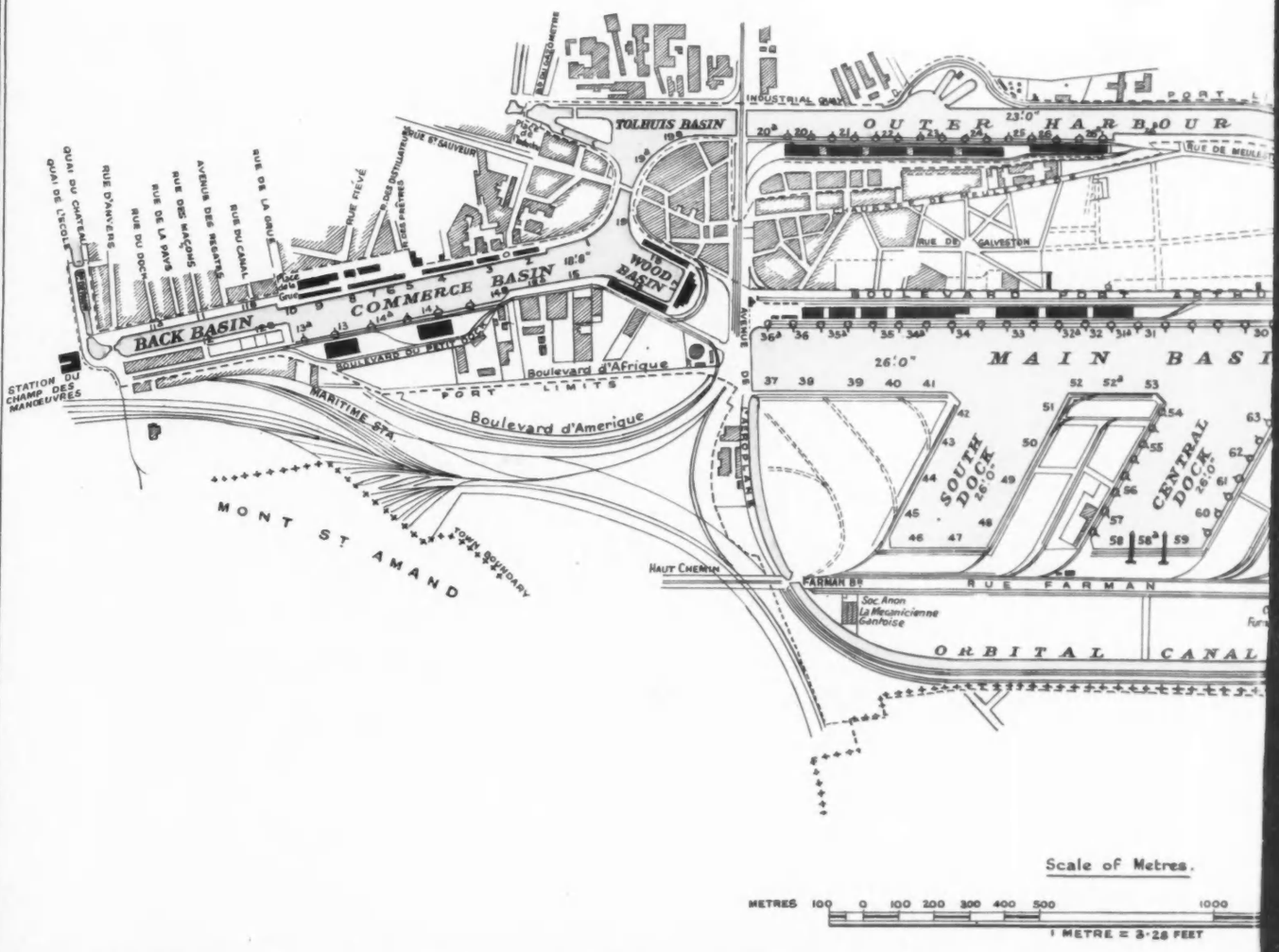
PORT OF GHENT.

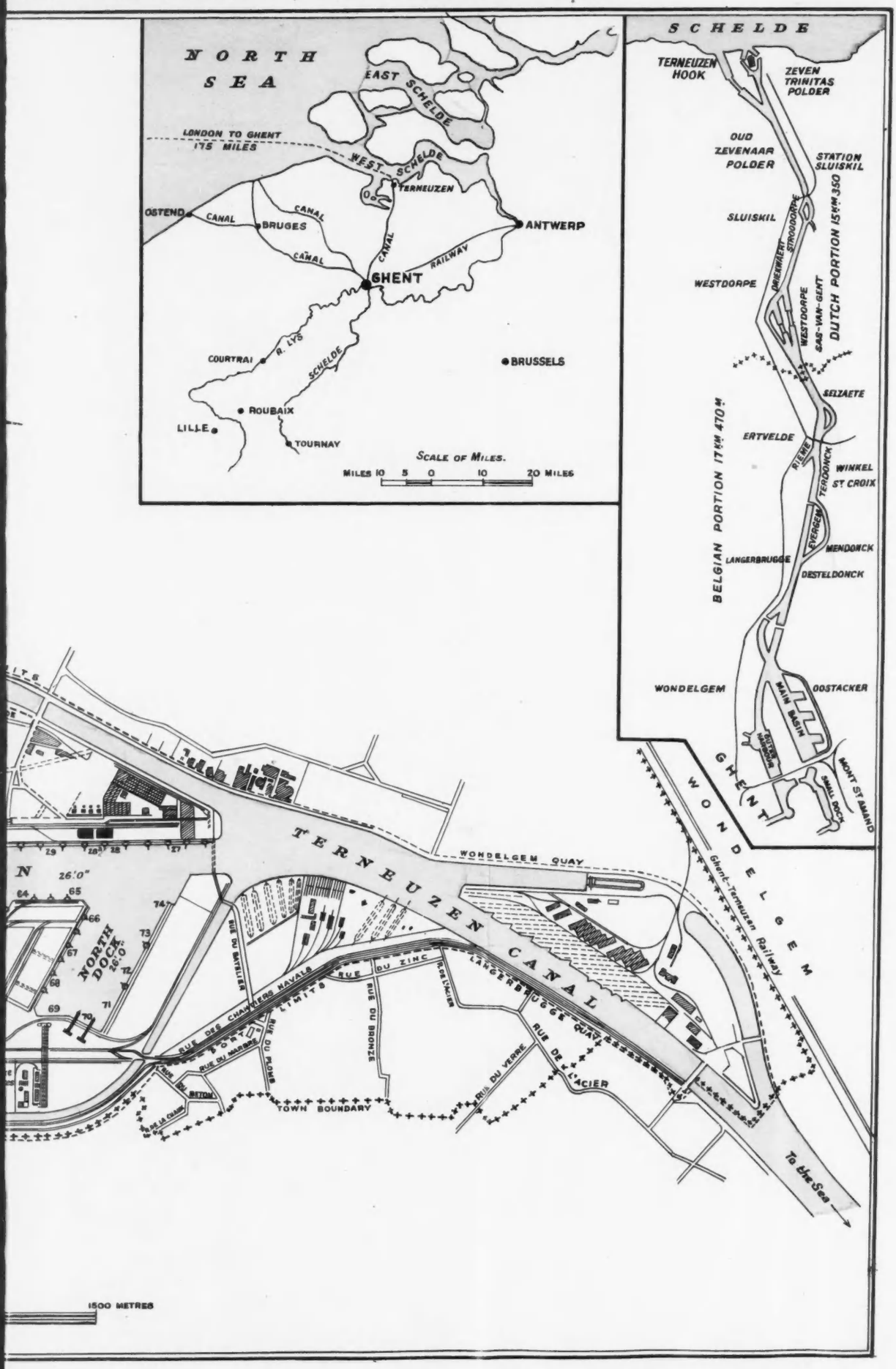
ENGINEER TO THE CORPORATION OF THE CITY OF GHENT;-MON. A. HAUSPYE.

	Length	Width	Depth
Terneuzen Locks	140 m.	18 m.	8·35 m.
	90	12	5·60
		8	
Sas-van-Gent	200	26	9·5
	110	12	6·65
		12	4·20
Commerce Basin		110	5·7 to 6·0
Outer Harbour		100	7·0
Main Basin		180	8·0
North Dock		250	8·0
Central Dock		290	8·0
Large Dry Dock	130	13·0	5·45
Small Dry Dock	75·85	11·0	4·45



WARD & FOXLOW, Harcourt St. Marylebone W.1. 5560.

OUR AUTHORITY, NOVEMBER, 1930.



Scottish Harbour Notes.

Wharf Extension at Dundee.

On Thursday, October 9th, His Royal Highness the Duke of York paid a special visit to Dundee to lay the commemoration stone in connection with the George V. Wharf extension, and, in keeping with his wishes, the ceremony was of as informal a character as possible. As a memento of the occasion the Duke was presented with the ivory mallet, the silver and ivory trowel, and the silver and ivory square with which he performed the ceremony. The George V. Wharf extension is an important movement for shipping in Dundee, providing, as it will, facilities at the harbour unrivalled on the east coast. The wharf, which was begun in the year 1914, extends to 900-ft., and the extension now commemorated embraces another 560-ft. The Harbour Trustees launched upon this scheme in reply to the Government's invitation to local authorities to submit works of public utility to help the unemployment problem, and the extension is estimated to cost something like £230,000.

Annual Meeting of Lossiemouth Harbour Board.

It was reported at a recently-held annual meeting of Lossiemouth Harbour Board that the revenue for the past year had shown a drop of £662 as compared with the previous year, and it was explained that this was primarily accounted for by a decrease both in the imports and the exports. Reviewing the present position, Colonel C. J. Johnston admitted that little of a cheering nature could be said for the prospects of the immediate future. The depression in trade generally, and particularly the parlous state of agriculture and the decision of the distillers to reduce their output of whisky by 25 per cent. would, he feared, be reflected in the revenue of the port; but the shareholders could rest assured that the directors and the harbourmaster would continue to do what they could to maintain the revenue and restrict the expenditure. Regret was also expressed that there was not much sign of revenue increasing from the herring fishing, but, on the other hand, there was a feeling that the seine net fishing would continue to make headway.

Proposed New Elevator for Leith.

At a recently-held meeting of Leith Dock Commission it was reported that the Works Committee had fully discussed the whole question of the site for the proposed new grain elevator warehouse to be erected in the docks to serve the purposes of the warehouse destroyed by fire last January. The alternatives were a new site at the Imperial Dock or the old site at the Edinburgh Dock, and it was agreed to instruct the superintendent (Mr. A. H. Roberts) to consider closely the advisability, in the event of the old site being chosen, of erecting a conveyor gallery leading from the Imperial Dock to the old site so that vessels going into the Imperial Dock might make use of the warehouse. It was also agreed to enquire whether a Government grant might be obtained for the gallery and relative works.

Portknockie Harbour Extension Scheme.

A considerable modification on the proposals put forward by the Portknockie Town Council with regard to the harbour extension scheme is made in the report issued by the consulting engineer of the Scottish Fishery Board, who reduces their proposal of £26,000 to £17,000. The consulting engineer, however, outlines an alternative scheme costing about £10,320 with, as the main feature of the latter, the excavation of the existing basin another three feet. The Fishery Board have informed the Town Council that they are prepared to recommend this last-named scheme for Government assistance, and the Council are to meet the Board's consulting engineer in an endeavour to arrive at an agreed-on plan before they put in application for a grant.

Greenock Harbour Trust.

When moving the approval of the minutes of the Work's Committee at a recent meeting of Greenock Harbour Trust, Councillor Oliphant-Wilson (Vice-Convener) drew attention to the recommendation that instructions be given to the harbour police and other harbour officials to immediately report any infringement of the section of the Harbour Acts which prohibits the depositing of ashes, etc., on the harbours and shipping berths, in order that prosecutions may be instituted under the Trust's Act and the maximum penalty pressed for. Councillor Oliphant-Wilson reminded the Trustees that during the past few months they had to undertake dredging in three harbour areas at a cost exceeding £3,000 and that, in two out of three areas, it had been found that dredging had been necessitated by accumulations of ashes. The recommendation from the Work's Committee was adopted by the Trustees, who have since made it known that they are taking a very serious view of this matter.

Anstruther Harbour Extension Proposals.

According to reports, the fishing community at Anstruther (Fifeshire) are incensed at the proposals which the Harbour Commissioners are considering for the extension of the local harbour. Allegations of wasteful expenditure and lack of foresight are being made against the Commissioners, whose schemes are now before the Fishery Board for approval. The proposals over which this storm has arisen include the widening of the west pier. "If the Commissioners persist in their schemes," said Mr. L. Robertson, a prominent local trawl owner, "they will be simply throwing away good money. The extension will be of absolutely no benefit to the fishing industry here. All along there has been a lamentable lack of foresight. Years ago the harbour ought to have been dredged and converted for use in all tides. At low tide it is a sea of mud and boats cannot enter or leave during the greater part of the day. Anstruther, if only for its central situation, ought to have been the fishing port of Scotland instead of Aberdeen. Aberdeen, however, had the enterprise and foresight which Anstruther decidedly does not possess, and instead money is to be wasted on schemes which can be of no material value."

Clyde Navigation Trustees and Local Rates Relief.

Clyde Navigation Trustees have had under consideration a report of a special committee appointed to consider how the relief on local rates payable by the trades under the operation of the De-rating Act should be apportioned among the various classes of traders using the Harbour of Glasgow, and at a recent meeting the recommendations of this committee were under discussion. The committee's recommendations as to the rebates to be granted were unanimously adopted, and it is estimated that these rebates will result in a total relief of £88,298. The coal (cargo and bunker) trade, which is estimated to yield a revenue of £100,381, will benefit in rebates to the extent of £30,114; iron ore, the revenue from which is estimated to be about £20,000, will have rebates up to £6,000; while the revenue from all the trades under Schedule "A" is estimated at £131,449, which at 30 per cent. will give a rebate of £39,434. Coastwise traffic under Schedule "B" is estimated to yield £212,249 in revenue, the rebate on which will amount to £63,674. Other items are as follows:—iron and steel, revenue £70,879 and rebate at 20 per cent., £14,175; new vessels, revenue £4,063 and rebate at 30 per cent., £1,219; graving docks, revenue £61,526 and rebate £9,229.

Increased Charges for Master Porterage.

At the same meeting of the Clyde Navigation Trustees reference was made in the minutes of the Traffic Committee to complaints which had been lodged with the Trustees regarding increases in certain charges for master porterage as proposed by the Glasgow Master Porterage Association in the new tariff charges as from October, and it was learned that there had been submitted additional letters of protest from the Glasgow Flour Trade Association, the Federation of Wholesale Fruit and Vegetable Trade Associations, and the Scottish Provision Trade Association; and also further letters from the Glasgow Chamber of Commerce (Paint and Oil) Section. It was further stated that correspondence had passed between the general manager and the Glasgow Master Porterage Association on the cost of the services covered by the charges and the date of their coming into force. After consideration it was agreed that the Trustees take no exception to the new tariff of charges for master porterage being brought into operation on December 1st next, subject to an assurance by the Association that, in the event of any modification being made subsequent to December 1st in any charge of tariff to which objection had been intimated to the Trutees, such modification would be given effect to as from December 1st.

Proposed Purchase of Burghead Harbour by Town Council.

A plebescite of ratepayers has been taken by Burghead Town Council as to whether it would be in the interest of the burgh for the Council to purchase the local harbour which at present belongs to a private company. The Government authorities will not give any grant either for the improvement of the harbour or the use of the Government dredgers, it is explained, and a tentative agreement for the purchase of the harbour for £7,000 has been reached between the Council and the Company. By this proposal the purchase price, plus 5 per cent., will be paid off in thirty years. As a result of the plebescite, it was shown that there were over four hundred ratepayers in favour of the harbour being purchased by the Town Council as against fifty ratepayers opposed to this scheme.

Scottish Harbour Notes—continued.

Greenock Harbour Trust.

At a recently-held meeting of Greenock Harbour Trust, a report was given of an important interview which had taken place between representatives of the Trust and the Government Department of Civil Aviation at which, it was explained, it had been made clear that it was not intended that facilities for seaplanes should be provided immediately at Greenock as there was not yet any such traffic offering, but that the Department desired to approve of certain sites for development as and when air traffic offered. It was further reported that this matter had been discussed with representatives of Greenock Corporation, and it was recommended that application be made to the Customs Authorities to declare the Gret Harbour an area for seaplanes; it being understood that this step could be taken without any immediate provision being made for an aerodrome.

Italian Harbour Affairs.

BEFORE going into the question of the total figures of shipping at Italian ports, it may be better to examine the position of the main Italian ports, and from this it appears that, while Venice and Naples have shown an improvement during August, 1930, the situation at Genoa and Trieste has shown a further decline.

In connection with Genoese shipping the following figures show the amount of this decline:—

	Arrivals			Clearances			Total		
1930	No.	N.R.T.	Goods Tons	No.	N.R.T.	Goods Tons	No.	N.R.T.	Goods Tons
August ...	433	798,908	427,546	445	831,148	55,013	878	1,630,056	482,559
July ...	441	902,658	564,659	434	839,328	52,111	875	1,741,985	616,770
June ...	444	827,457	476,573	440	837,604	80,350	884	1,665,061	556,923
1929									
August ...	456	825,197	537,941	495	894,200	81,088	937	1,719,397	619,029

It should be considered that August has always been the worst month of the year, and consequently the reason for this decline can be easily understood, but it should not be forgotten that the active chartering of tonnage in the Black Sea ports is bound, sooner or later, to influence trade at the largest Italian ports. It should be noted, on the other hand, that the fact that the quantity of coal bunkered at Genoa has increased clearly shows that tonnage is not deserting the port of Genoa.

At Naples things have been much better, as imports by sea have shown an increase of 27,000 tons during the month of August, 1930, in respect to August 1929, and this is due particularly to an increase of 32,000 tons in the imports of cereals; 13,000 tons in the imports of oil, and 6,000 tons in the imports of general cargo, while the imports of coal and lumber have shown a decrease of 24,000 tons.

At Trieste imports by sea during August, 1930, have reached 113,765 tons, against 186,039 tons during August, 1929, and exports 53,597 tons against 66,430 tons. Total shipping has thus reached 167,362 tons against 252,469 tons during August, of 1929, thus showing a decrease of 85,107 tons equalling about one-third of the total.

According to the monthly bulletin of the Provveditorato del Porto at Venice, shipping at that port during the month of August, 1930, has shown an increase of 17 per cent. over the traffic of the corresponding period of 1929, which is shown by the following figures:—

	Unloading Tons	Loading Tons	Total Tons
August 1930 ...	222,836	50,403	273,239
August 1929 ...	204,699	28,876	233,575
	+18,137	+21,527	+39,664

The quantity of goods unloaded has shown an increase of 19,000 tons, i.e., about 9.4 per cent. in respect to August, 1929, chiefly due to a progress in the imports of oil (11,500 tons), cereals (8,000 tons), fertilizers (3,800 tons), and general cargo (12,700 tons), while the imports of coal have shown a decline of 17,000 tons. The shipments of goods from Venice during August, 1930, have shown an increase of over 21,000 tons, i.e., about 75 per cent., due chiefly to the increase in the exports of pyrite ashes (18,000 tons), building material (3,600 tons) and fertilizers (2,800 tons), while the exports of general merchandise have shown a decline of about 3,000 tons.

If these figures are compared to those of the previous months it will be noticed that the increase has been even larger than may appear at first:—

1930	Imports (Tons)	Exports (Tons)
August	222,836	50,403
July	270,000	22,000
June	199,251	39,020
May	230,505	61,623
April	201,035	54,059
March	229,100	30,156
February	171,718	29,208
January	201,436	50,203

As a whole, traffic at Venice during the first eight months of 1930 reached 2,038,352 tons, against 2,043,460 tons for 1929, which means that things have remained practically unchanged.

Shipping at Italian ports has not shown many changes during the period under review, taking into consideration that the unloading of main goods at chief Italian ports has shown the following developments:—

Jan.-Aug.		Coal	Cereals	Cotton	Oilseeds
Genoa,	1930	1,817,919	629,420	94,860	66,221
	1929	1,944,808	837,581	128,401	153,429
Savona,	1930	931,475	10,025	—	—
	1929	1,078,621	—	—	—
Livorno,	1930	600,332	85,474	2,060	337
	1929	737,291	76,885	2,181	44
Civitavecchia,	1930	463,618	49,104	267	—
	1929	440,176	64,728	420	—
Naples,	1930	472,195	212,163	6,664	1,720
	1929	628,704	305,331	6,759	6,310
Palermo,	1930	222,178	16,929	—	303
	1929	192,671	27,472	—	218
Catania,	1930	84,480	40,810	—	113
	1929	102,420	59,451	—	83
*Trieste	1930	265,672	3,114	29,104	30,103
	1929	290,033	93,080	37,241	115,512
Fiume	1930	40,035	1,075	169	2,051
	1929	34,471	1,378	203	—
Venice	1930	865,559	139,646	30,174	7,791
	1929	867,812	267,168	30,009	3,993

From the above mentioned figures it is clear that the decrease in imports of cereals is not affecting trade, as in the case of Venice, where although the imports of cereals have decreased, trade is practically what it used to be. It is evident that the cause of the decline differs from port to port, as while the decline in the imports of cereals at Genoa is connected with the satisfactory Italian crop during 1929, the decline at Trieste is connected with the decreased purchases of Central Europe on overseas markets. As a matter of fact the same course may be noted in the trade at North Sea ports, which are the main outlets of Central European countries.

The town of Bari has decided to undertake the repairs of the old port itself, in order that it should be in an efficient state at the time of the inauguration of the new port which is being built there. Steps have been taken particularly to increase the depth of the water. The Royal Dredge " Sdobba " has been sent to Bari upon instructions of the Ministry for Public Works.

The Società Fiumana Impresa Lavori Portuali has commenced the construction of the harbour improvements at Fiume on the Riva Emanuele Filiberto and in the Duca degli Abruzzi Dock.

Also at Bengasi (Africa) work is proceeding with great speed. Up to the present about 255 metres of the breakwater have been completed in a depth of 5 metres, but the final depth to be reached is 11 metres. Special block construction has been adopted for this breakwater owing to the heavy seas prevailing in this part of the Mediterranean.

The Ministry for Public Works has authorized the immediate construction of a port at Ortona a Mare, and for this purpose a credit of 30 million lire has been authorized.

A meeting has been held at Naples with the object of ascertaining the present progress of the harbour enlargements at Naples, and the opportunity to further increase the present works and facilities.

*For the period January-June 1930, only.

New Electric Cranes at Avonmouth Docks.

AMONG the most modern and up-to-date equipment in the country must be classed the handling plant at the extension of the Royal Edward Dock at Avonmouth. The transit sheds "U" and "V" here are each 500-ft. long and 100-ft. wide, with two floors and a flat roof, part of which is covered in, forming a third floor, together

Fig. 1.

with rail access front and rear and facilities for loading into motor lorries at the ends and the back of the sheds. The sheds are constructed of ferro concrete and joined together, forming a continuous rail track for eight 2-ton electric roof cranes. Mixed liner cargoes are dealt with at these sheds,

Fig. 2.

grain being discharged by shore or floating elevators working from the vessels' holds to a band gallery extending the full length of both sheds or to storage granaries at the rear. General cargo is discharged by the electric cranes on the roofs of the ground floor by electric trucks. Delivery direct from ships' holds to truck can also be carried out. The sheds are also equipped with four electric lifts and escalators.

Sheds "U" and "V" are equipped with Stothert & Pitt level-luffing type cranes, eight on the waterside having a lifting capacity of 2 tons at a maximum radius of 65-ft., while the two on the land side are of the same capacity at a radius

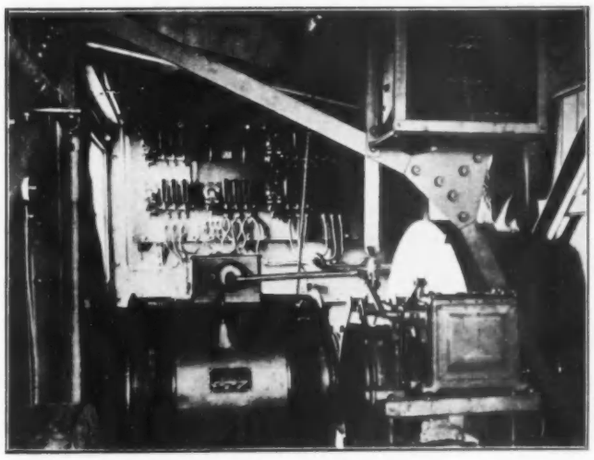


Fig. 3.

of 28-ft. The electric equipment is particularly interesting. The power supplied is three-phase 50 cycles at 365 volts, the motors being of the two-speed squirrel cage high starting torque type by the English Electric Co. In the case of the hoisting motors, there is one resistance step on the first speed only. The remaining motors are switched direct on to the supply.

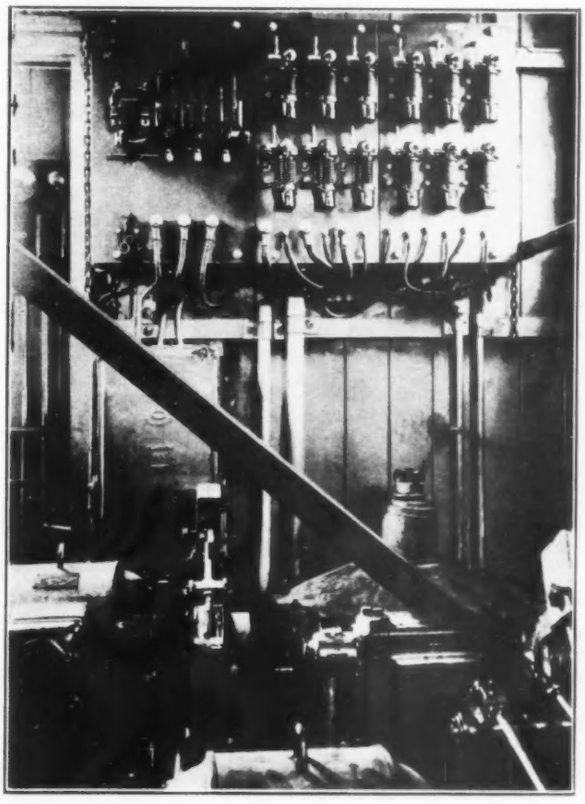


Fig. 4.

The control gear for these motors, which is by the Igranic Electric Co., is most ingenious, and includes a hoist controller of the contactor type and three controllers of the drum type for slewing, luffing and travelling. The drum controllers have cam operated contacts affording a quick make and break, so that burning of the contacts is reduced to the minimum, their life being thereby considerably prolonged.

New Electric Cranes at Avonmouth Docks—continued.

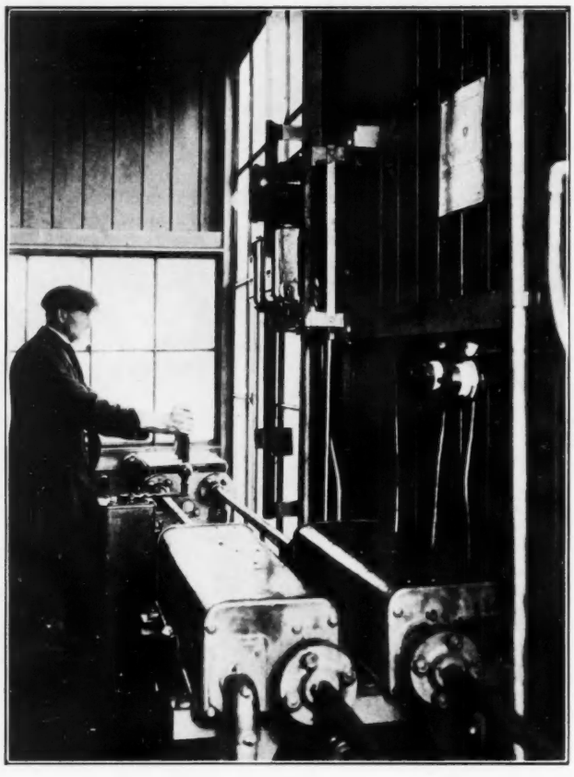


Fig. 5.

The controllers for the three operations of slewing, luffing and hoisting can be operated from dual positions by means of lever handles and cross shafting. Limit switches are installed to prevent over-luffing in both directions and over-hoisting.

Fig. 1 is a close view of one of the Stothert & Pitt level luffing cranes on the shed roof, while Fig. 2 shows three 2-ton level luffing cranes on the roof of transit sheds "U" and "V."

Fig. 3 is an interior view of the crane cabin and shows the hoist motor in the foreground, with the solenoid brake on the right and the starting resistance above. This solenoid brake is fitted to the hoisting motion. The automatic contractor panel is on the wall in the background.

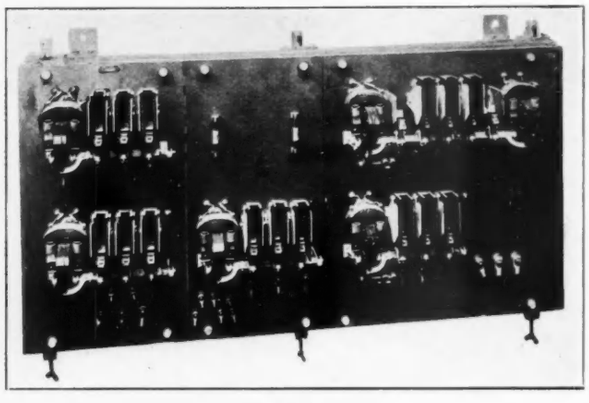


Fig. 6.

Fig. 4 is another view of the cabin interior and shows the crane protective panel on the wall with the three-phase time lag overload protection for all four motors. The luffing and slewing motors are in the foreground.

Fig. 5 shows the operator at one of the dual control positions. The cam type drums for the hoist, luffing and slewing motors are in the foreground, with the shaft drive from levers at the operator's position. The vertical drum at the side of the operator is for the travel motor control.

Fig. 6 indicates the simplicity of the hoist control panel. The interlocked reversing contactors are on the left and the five-pole high-speed contactor on the right above.

Irish Harbour Matters.

Butt Bridge to be Reconstructed. Tender for £55,000 Accepted.

ON the recommendation of the Finance Committee, the Dublin Port and Docks Board have accepted the tender of Messrs. Gray's Ferro-Concrete (Ireland), Ltd., Burgh Quay, Dublin, to reconstruct Butt Bridge at a cost of £55,018 6s., subject to the formalities required by the engineer and law agent being complied with.

Seven tenders were received.

Mr. Wm. Field said it was very satisfactory that a Dublin firm would be doing the work and giving employment in the City.

Mr. Wm. Hewat said he was glad that the work was about to be started. It was very necessary and would be a great improvement to the City.

Mr. T. R. McCullogh said that the tender was well within the mark. In the evidence before the Dail Committee the estimated cost was £58,000.

Mr. Walter Baird, who presided, said that now that the contract had been approved, he wished to point out that the control of traffic in the City of Dublin was a matter to which they had given close attention. Traffic in Dublin had increased enormously in recent years, and it had been the object of the Board for a long time to improve Butt Bridge, but they found on various occasions that they could not do what they wanted.

They had to promote a Bill in the Dail to have the matter dealt with in a business-like way. They had a great deal of opposition, and rightly so—everyone had the right to criticise, but the Board stuck to the Bill and the Bill had been passed.

They had many critics in the city who did not see eye to eye with them. Still, after negotiations with all the interests concerned the Bill was approved. They had the able assistance of their engineer, Mr. Joseph Mallagh, and associated with him they had Professor Purcell, and in spite of all arguments, these two gentlemen justified the position they adopted from the start. He hoped and believed that this contract would be completed in a satisfactory manner and that they would have an excellent bridge. He believed that the bridge would afford immense facilities to the City and that it would greatly relieve congestion.

R.O.P. Installation in Dublin.

The Russian Oil Products, Ltd., have made an ocean installation at the Alexandra Basin, Dublin. This installation is situated on a site of two acres. The insulation moat, along the Tolka frontages contains five large vertical containers, four for spirit and one for kerosene, each capable of storing 750,000 gallons. These containers are connected by six-inch underground steel pipe lines to a valve chamber alongside the deep water berth in Alexandra Basin, and are coupled direct to the oil tanker, which pumps its cargo into the installation.

In addition, the company has built a lubricating oil pumping station, service sheds, a garage 150-ft. by 50-ft. for its road transport, switch house, and staff rooms and offices.

Belfast Shipyards' Output.

For the nine months ended 30th September last, the output of the Belfast shipyards was the largest since 1919, when the post-war boom was on. Twenty-one vessels with an approximate tonnage of 138,000 were launched during the period named, as against eighteen vessels of 144,977 tons launched in the year 1929. Messrs. Harland and Woolff, Ltd., launched 13 of the 21 vessels, with an aggregate tonnage of nearly 91,000, while Messrs. Workman, Clark (1928), Ltd., accounted for eight with a tonnage of roughly 47,000. Four vessels were launched in September, two by each firm. The Union Castle liner "Warwick Castle" (20,600 tons), and the "Bera del Pacifico," which was launched on the 23rd September for the Pacific Steam Navigation Co., of which Lord Kylsant is Chairman, were the two principal vessels launched to date. None of the other vessels exceeded 10,000 tons.

Belfast Port Affairs.

Progress of Constructional Work at Belfast.

GOOD progress has been made with the preliminary operations in connection with the construction of the new dock and quays on the Co. Antrim side of the river at Belfast. The scheme will be pushed on with the utmost speed, and it is expected that the dock will be completed within four years. The need for increased dock accommodation has been emphasised by the tendency of modern shipping to increase the size of passenger ships, as was shown lately when several magnificent new passenger vessels were put on the Belfast and Liverpool service. At Donegall Quay, where these vessels are berthed, the capacity of the harbour is almost taxed, and if other cross-channel steamers, now on service, are replaced by vessels about the same length as those recently put into commission, the new dock will not be ready a moment too soon.

Flying Boats between Belfast and English and Scotch Ports.

The advent of flying boats, carrying passengers, mails and parcels between Belfast and English and Scotch ports, and doing the journey in a fraction of the time now taken, is at hand, and the time is not far distant when a fleet of giants of the air will ride on the waters of Belfast Harbour, where slower craft lies to-day.

Good Organisation at the Port.

The visitor to Belfast Harbour is always struck with the activity and business methods, showing that the port is one of the best operated in the world, the splendid organisation at work in handling the passenger services and merchandise being noticeable everywhere.

In this connection it is interesting to note that there has been a revolution lately in the methods of the transport of cargo from the docks to the warehouses and to the large number of provincial towns depending on Belfast. Formerly the practice was to cart merchandise from the harbour to the warehouses for distribution by road and rail. That of course involved a good deal of handling and not a little delay in getting goods into the hands of provincial distributors and merchants. To-day the practice is to so arrange consignments that once landed they are picked up by the consignee, provincial distributors, or merchants, and hauled in motor lorries direct to the provincial town or place of manufacture, or distribution.

A miller, who was supervising the loading on to motor lorries of a large consignment of maize, said in the course of a conversation that the new method was more satisfactory. Formerly, he went on to say, small lots had to be taken into warehouses by the importer, and unless orders from the country towns were definitely booked ahead, it was seldom that packages were sent direct from the harbour to the purchaser. The present system of arranging consignments so that the millers and merchants could send their own lorries into Belfast and load the goods immediately they were landed was far ahead of the old methods.

He added that in his opinion extensive warehousing at landing ports, except for purely local and immediate purposes, would gradually disappear when millers and merchants in country towns came to appreciate the advantages of taking delivery of their goods out of the ship's slings. It was all a matter of looking ahead and knowing when one's consignments were coming forward.

Meeting of the Harbour Board.

The Belfast Harbour Board, at a meeting on October 7th, considered a letter from the White Star Company in reference to the Transatlantic shed at the harbour. The Company suggested that central heating apparatus be installed in the medical examination shed, in lieu of electrical radiators, and that the ventilation of the shed be improved.

The Board authorised the Acting Chief Engineer to carry out the suggestions.

At the same meeting the Harbour Master (Captain McIntyre) presented another very gratifying report of the traffic at the port. This showed that 432 vessels arrived at the port during the period extending from the 14th September to the 4th October, made up as follows:—Coastwise and cross-channel 385, foreign 34, non-trading 13.

The total tonnage of vessels which arrived from the 1st January to the 4th October, was:—Coastwise and cross-channel 2,154,278, an increase of 203,720 over the corresponding period last year; foreign 552,029, an increase of 68,981; non-trading 103,236, an increase of 51,332. Total 2,809,543, an increase of 324,033.

Harbour Plant Contracts.

Messrs. Stothert and Pitt, Ltd., of Bath, the well-known specialists in harbour plant, are at present engaged on some interesting examples of this class of work, the leading features of which are summarised below:

For Harbour Works at Dar-es-Salaam, Tanganyika, East Africa.

A steam-operated Titan of the "Hercules" type, for block setting service, having a lifting capacity on the main hoist gear of 20 tons at 30-ft. radius, or 10 tons at 60-ft., whilst on the auxiliary hoist loads up to 6 tons will be handled at 57-ft. 6-in. radius. The machine travels on a 13-ft. 6-in. track, and the hoisting gear will have the special "Stothert and Pitt" hydraulic brake with free-wheel device. The total weight of the Titan in working order, with fuel, water and ballast will be about 120 tons.

A steam-operated "Goliath" for blockyard service, capable of dealing with a 15-ton working load, the span of rails to be 60-ft. and the main girders to have overhanging ends at each side. The clearance from ground level to underside of main girders to be 20-ft., and all motions are to be controlled from the driver's position on the crab.

With the "Hercules" mentioned above there will be supplied as accessories, two sets of 10-ton "Fidler" block tilting gear, two 35 cubic feet "Punchard" drop-bottom skips for laying concrete under water, a single chain "heavy weight" grab, 27/35 cubic feet capacity, and a lifting beam with two Lewis bars.

For Douglas Harbour (Isle of Man) Pier, Yard and Pier Extension Service:

A steam-operated "Hercules" type Titan crane, for block setting on a pier extension scheme, to deal with a 15-ton load at 67-ft. maximum radius, and change speed gear is provided for light loads up to 7½ tons. The rail tracks on which the machine travels are spaced 49-ft. 6-in. centre to centre, and the total range of lift is 60-ft.—15-ft. above rail level and 45-ft. below.

A steam-operated "Goliath" for block-handling in the blockyard, the working load to be 15 tons, and change gear to be fitted for loads up to 7½ tons. The span of the track rails is 60-ft., and the height of lift is 19-ft. All motions are controlled from the crab, which carries the driver's cabin.

For Port of Havre (Northern France) Harbour Extension Scheme:

A "Hercules" type Titan, with the several motions operated by a 40 h.p. Diesel engine. The machine to deal with a 5-ton working load at 20m. (65-ft. 7½-in.) maximum radius, and travel on track rails 4m. (13-ft. 1½-in.), centre to centre, the eight travelling wheels to be arranged in articulated bogies. The height of lift above rail level is 5.70m. (18-ft. 8-in.) and the depth below rail 14½m. (47-ft. 7-in.). On the hoisting motion, Messrs. Stothert and Pitt's special relay clutch will be used; this clutch is very sensitive and enables the load to be so lifted that the torque is applied very gradually to the engine without the danger of "stalling."

The Marconi International Marine Communication Co., Ltd.

At a meeting of the directors of the above Company, held on October 8th, it was resolved—"That an interim dividend of 5 per cent., equal to one shilling per share, less Income tax, upon the 1,192,726 shares, numbered 1 to 1,192,726, be paid on account of the year ending 31st December, 1930. That the said dividend be payable on the 28th October, 1930, to the shareholders registered on the books of the Company on the 8th October, 1930, and to holders of Share Warrants to Bearer; and that the Transfer Books be closed from the 9th to the 14th October, 1930, inclusive."

In authorising the payment of this interim dividend, the directors were glad to state that they had no reason to qualify the statements made in their Circular to Shareholders dated June of this year in regard to the progress of the Company's business.

Aden Port Trust.

The returns for the month of August, 1930, of shipping using the port were as follows:—

	No.	Tonnage.
Merchant vessels over 200 tons	130	506,707
Merchant vessels under 200 tons	7	924
Government vessels	5	8,763
Dhows	46	977
PERIM.		
Merchant vessels over 200 tons	20	55,552

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	0	0	0	0
Coffee	Cwts.	6,171	2,13,149	6,254	2,97,519
Grain, Pulse and Flour	,,	15,982	1,28,138	14,630	1,13,535
Gums and Resins	,,	561	14,523	1,580	47,666
Hardware	—	0	10,530	0	15,374
Hides, raw	No.	2,297	4,191	5,205	11,719
Oil, Fuel	Tons	31,043	9,31,290	0	0
,, Kerosene	Gls.	20,000	15,500	3,208	2,485
,, Petrol	,,	65,368	84,693	2,932	3,705
Salt	Tons	0	0	14,750	1,20,000
Seeds	Cwts.	2,109	22,316	221	4,593
Skins, raw	No.	257,820	1,59,131	282,065	2,73,529
Sugar	Cwts.	12,741	91,934	15,255	1,06,173
Textiles—					
Piece Goods, Grey	Yds.	2,438,635	4,00,910	2,459,640	4,21,679
,, ,, White	,,	372,761	1,10,096	272,842	82,664
,, ,, Printed or Dyed ...	,,	445,885	1,37,690	536,290	1,53,523
Twist and Yarn	Lbs.	232,713	1,55,135	152,795	1,16,120
Tobacco, Unmanufactured	,,	2,428,048	5,53,130	632,240	1,40,644
,, Manufactured	,,	25,984	29,332	48,608	53,559
Other Articles	No. of Pkges.	50,375	8,28,357	11,208	3,37,588
Treasure, Private	—	0	7,18,645	0	3,56,158
Total ...	—	—	46,08,690	—	26,58,233

The number of merchant vessels over 200 tons that used the port in August, 1930, was 130 as compared with 124 in the corresponding month last year, and the total tonnage was 507,000 as compared with 506,000.

Excluding coal, salt, fuel oil and Military and Naval stores and transhipment cargo, the total tonnage of imports in the month was 6,300 and of exports 3,700 as compared with 7,300 and 4,900 respectively for the corresponding month last year.

The total value of imports excluding government stores was Rs.46,09,000, as compared with Rs.58,73,000 for August, 1929, and of exports Rs.26,58,000 as compared with Rs.46,51,000.

The total value of both imports and exports together was Rs.72,67,000 as compared with Rs.105,24,000 for the corresponding month last year.

Imports during the month were above those for August, 1929, in the case of seeds, skins (raw) tobacco (manufactured) and treasure (private); and below in the case of coffee, grain, pulse and flour, gums and resins, hardware, hides (raw), sugar, piece goods grey, white and printed or dyed, twist and yarn and tobacco (manufactured).

Exports were above those for August, 1929, in the case of coffee and tobacco (manufactured); and below in the case of grain, pulse and flour, gums and resins, hardware, hides (raw), seeds, skins (raw), sugar, piece goods, grey, white and printed or dyed, twist and yarn, tobacco (unmanufactured) and treasure (private).

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From the statistics issued by Lloyd's Register of Shipping regarding vessels under construction at the end of September in Great Britain and Ireland there is a decrease of 275,317 tons in the work in hand as compared with the figures for last June and the present total—1,116,746 tons—is 331,609 tons less than the tonnage which was being built at the end of September, 1929.

About 218,000 tons of the tonnage now in hand in this country are intended for Norway; about 21,000 tons for the British Dominions; and about 209,000 tons are for other foreign shipowners or for sale.

The tonnage now under construction abroad—1,425,290 tons—is about 213,000 tons less than the work which was in hand at the end of June, 1930.

The totals for the end of September, 1930, do not include the tonnage building in Russia, from which country no returns have been received.

Five countries abroad have more than 180,000 tons under construction, viz.: United States, 212,974 tons; France, 209,307 tons; Germany, 194,200 tons; Italy, 188,384 tons; and Holland, 184,920 tons.

The total tonnage under construction in the world amounts to 2,569,036 tons, of which 43.5 per cent. is building in Great Britain and Ireland, and 56.5 per cent. abroad. The average percentages in the last twelve months before the war were 57.2 for Great Britain and Ireland and 42.8 for abroad.

In Great Britain and Ireland 160,714 tons were commenced—a decline of about 70,000 tons from the similar figures for the June quarter; and 378,585 tons were launched—a decrease of about 89,000 tons. Similar figures for abroad are 319,530 tons commenced, and 342,500 tons launched.

A decrease of about 76,000 tons as compared with the record figures for June, is shown in the tanker tonnage under construction, the present figures being 135 vessels of 1,034,144 tons, of which 69 vessels of 540,318 tons are being built in Great Britain and Ireland, and 15 vessels of 128,545 tons in Germany. It is significant that of the 135 tankers under construction, 122 are motor ships.

The tanker tonnage now building represents over 40 per cent. of the total steam and motor tonnage under construction in the world, this percentage being the highest on record.

As was the case at the end of March and June, the tonnage of motor ships now under construction in Great Britain and Ireland exceeds that of steamers building, the present figures being 637,154 tons and 476,692 tons respectively. The motor ship tonnage being constructed abroad (922,180 tons) exceeds by over 75 per cent. the tonnage of steamers.

The continued progress in the employment of the internal combustion engine for large vessels indicated by the fact that while there are now being built in the world 78 motor ships of between 8,000 and 15,000 tons each, only 17 steamers of such size are under construction. As regards vessels of over 15,000 tons, the totals comprise 15 steamers and 7 motor ships.

The table respecting marine engines show that the horse power of steam engines now being built or being fitted on board amounts to about 1,123,000 horse power, while the figures for oil engines aggregate about 1,120,000 horse power. The figures for steam engines include 54 sets of turbine engines of about 757,000 shaft horse power, giving an average of 14,000 horse power per set.

Tonnage to Lloyd's Register Class.—The pre-eminent position which Lloyd's Register retains amongst the Classification Societies of the world is demonstrated by the fact that the tonnage actually under construction throughout the world under the inspection of Lloyd's Register reaches 1,803,691 tons, of which 997,401 tons are being built in Great Britain and Ireland.

The Port of New Orleans.

THE falling off of international trade as a result of the general depression in business which has obtained during the year, reflects in decreased vessel and cargo movements in all the great ports of America, and while New Orleans, like other ports has experienced a slackening of activities across the docks, as compared to 1929, the falling off is not nearly as great as some of the larger ports have encountered, and figures indicate that New Orleans on a whole is more than holding its own in its import and export business.

By the figures prepared in the office of John McKay, the general manager of the Board of Commissioners of the Port of New Orleans, a comparison is shown of the business done in the Port in September, 1929, and September, 1930. While there was a falling off of the port business the figures show that the Inner Harbour Navigation Canal is maintaining a steady advance, and for September, 1930, was well ahead in vessels and tonnage of September, 1929.

During the month of September, 1930, according to the Dock Board report, there were 207 vessels to arrive in port, fifty-nine vessels less than in September, 1929. There were 221 departures of vessels, or 54 less than the same month last year. These are all sea-going vessels.

The gross tonnage of vessels arriving in September, 1930, was 864,038, or 186,855 tons less than for September, 1929. The gross tonnage of vessels using the public docks during last month was 764,871, or 5,607 tons less than the same month last year.

Tons of cargo paying tollage in September, 1930, amounted to 269,135, a decrease of 30,118 tons in comparison to September of 1929. The conveyors during September, 1930, handled 1,204,256 bunches of bananas, 533,481 bunches less than in September, 1929.

Net dock charges for the month were $144,841.19, or $8,073.06 less than the net charges for the month of September, 1929.

Of the 207 vessels to arrive in port for the month, representing sixteen nations, more than 50 per cent. were ships flying the American flag. And of the 864,038 gross tonnage, 473,629, or again more than 50 per cent., were afforded by the liners of the United States.

England maintained her usual second place in tonnage, although fourth in the number of vessels, and Honduras was second in number of ships and third in tonnage.

The vessels to arrive during the month, as to nationality and tonnage, were as follows:—

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Danish	3	7,647
Dutch	4	18,557
French	3	24,485
German	5	15,961
Greek	1	4,229
Honduran	27	71,116
Italian	5	29,535
Japanese	1	9,539
Norwegian	23	66,369
Nicaraguan	1	546
Panaman	1	668
Swedish	4	10,189
	207	864,038

Arrivals of inland watercraft of more than 25 tons, including steamboats, tugs and barges of various description for the month, registered a gratifying increase as compared to September, 1929. The number of arrivals was 294, or 69 more than September of last year. The tonnage represented in these boats was 110,497, or an increase of 30,129 over September of last year.

There were 786 vessels using the Inner Harbour Canal, September, 1930, an increase of 18 over the same month last year. The tonnage for September, 1930, was 319,738, or a gain of 19,660 tons as compared to September, 1929.

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Mr. McKay, after giving a brief history of the port, explained how it was operated by the Board of Commissioners, an agency of the State of Louisiana, and in this connection he told of many of the obstacles that had been encountered and overcome. The port, he said, developed from a mud bank into a world port with the finest system of wharves, sheds, handling facilities and rail connections to be found anywhere.

He went on to say that it had long been the policy of the Board to keep the port facilities in their development at least five years ahead of the demands of maritime commerce, and as a result the port was always ready to take care of any sudden increase in movements of vessels and cargoes that might take place.

The improvements now under way mentioned by Mr. McKay are the rebuilding of the Bienville Street Wharf for the Southern Pacific line at a cost of $1,200,000; the reconstruction of the Mandeville Wharf, destroyed by fire last March, at a cost of $750,000; and the rebuilding of the Charbonnet Wharf, destroyed by fire in February, at a cost of $280,000. All these structures are to be equipped with automatic sprinklers and other devices, and will be practically fireproof.

In the future work to be undertaken by the Commission, Mr. McKay said, will be the reconstruction of the Toulouse Street, the Dumaine Street, and the Gov. Nicholls Street Wharves, at a cost of approximately $1,000,000. This work is made necessary by river bank and levee conditions, and will be undertaken immediately after the completion of the Bienville Street Wharf.

Although the work now under way and contemplated for the future is very extensive, it will only take care of the present river front area, and be sufficient for but a few years, Mr. McKay pointed out.

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Mr. McKay, commenting upon the establishing here of terminals by the Gulf, Mobile and Northern Railroad, said that this would give the port another trunk line outlet to the north and north-west through its connection with the wonderful Burlington system, a connection that would be of inestimable value to the port.

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One thing the port needs badly is an addition to its grain handling facilities. With the completion of the Mississippi, Missouri and Illinois river waterways system, the Port of New Orleans is destined to become one of the great grain ports of the world, and facilities must be provided for handling this grain. These facilities, Mr. McKay thought, should be provided by the rail and barge line agencies.

Before concluding his interesting talk, Mr. McKay stressed the importance to the Port of New Orleans of the recent inauguration of the Barge Service from Cincinnati.

Charleston's Foreign Trade Registers Gain.

Foreign trade in Charleston, South Carolina, for September increased a half million dollars more than that of September, 1929, and eight times that of August, the month preceding, figures at the Custom House show.

The port's commerce was valued at $3,716,788 for last month as compared with $3,155,778 for September, 1929; and $463,179 for August. Large shipments of cotton to England and Europe swelled the total value of the port's trade.

Exports last month were valued at $3,461,176 as compared with $2,295,663 for the month in 1929, and they more than offset a half-million drop in imports. Imports were valued at $255,612, as against $860,115 for September, 1929 and $240,116 for August.

Principal exports during September included cotton, lumber, tobacco and logs to Germany; cotton, lumber, cotton waste, tobacco, cotton seed hulls, and oyster sheel to England; lumber to Belgium, oak staves to Spain, tobacco and oak staves to Holland; cotton to France, oak staves and lumber to Argentina.

Imports consisted principally of sugar from Cuba; antiques from England; human hair from China; antiques from France; fertilizer from Germany; news print from Finland, and oil from the West Indies.

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Mr. McKay further told of the plans the board now had under way for protecting the wooden wharves from fire by the installation of draft breaks and automatic sprinklers above and below the wharf floors. He incidentally mentioned that fire losses to the port in past years amounted to more than $20,000,000.

One thing the port needs badly is an addition to its grain handling facilities. With the completion of the Mississippi, Missouri and Illinois river waterways system, the Port of New Orleans is destined to become one of the great grain ports of the world, and facilities must be provided for handling this grain. These facilities, Mr. McKay thought, should be provided by the rail and barge line agencies.

Before concluding his interesting talk, Mr. McKay stressed the importance to the Port of New Orleans of the recent inauguration of the Barge Service from Cincinnati.

Charleston's Foreign Trade Registers Gain.

Foreign trade in Charleston, South Carolina, for September increased a half million dollars more than that of September, 1929, and eight times that of August, the month preceding, figures at the Custom House show.

The port's commerce was valued at $3,716,788 for last month as compared with $3,155,778 for September, 1929; and $463,179 for August. Large shipments of cotton to England and Europe swelled the total value of the port's trade.

Exports last month were valued at $3,461,176 as compared with $2,295,663 for the month in 1929, and they more than offset a half-million drop in imports. Imports were valued at $255,612, as against $860,115 for September, 1929 and $240,116 for August.

Principal exports during September included cotton, lumber, tobacco and logs to Germany; cotton, lumber, cotton waste, tobacco, cotton seed hulls, and oyster sheel to England; lumber to Belgium, oak staves to Spain, tobacco and oak staves to Holland; cotton to France, oak staves and lumber to Argentina.

Imports consisted principally of sugar from Cuba; antiques from England; human hair from China; antiques from France; fertilizer from Germany; news print from Finland, and oil from the West Indies.

Bengal Harbour Notes.

Calcutta Port Trust.

THE year 1929-30 was the third successive year in which both the total tonnage of ships entering the Calcutta Port and the total quantity of good handled by the Commissioners at the jetties and docks exceeded the highest figures for the pre-war years. The figures were also higher than those for the two preceding years. The total net tonnage of ships entering the port amounted to 4,985,999 compared with 4,818,831 during 1928-29, and the total quantity of goods handled by the Commissioners at the jetties and docks amounted to 6,684,581 tons as compared with the total of 6,609,524 handled in 1928-29. Adding the tonnage of goods discharged overside into boats, petroleum landed at Budge Budge, and goods shipped overside from the boats, the total quantity of goods amounted to 10,871,166 tons as compared with 10,840,284 tons in 1928-29 and 10,439,012 tons in 1927-28.

The Administration Report of the Port Commissioners says that during 1929-30 revenue for the first time had to bear a full year's interest charges on the capital cost of the construction of King George's Dock, and there was consequently a deficit on the year's working as had been anticipated. The deficit, however, amounted only to Rs. 2,144,278 as compared with a figure of Rs. 2,792,188 allowed for in the original Budget Estimates for the year. The Commissioner's charges were increased from April 1st, 1925, with a view to building up a Revenue Reserve Fund which would be sufficient to meet the annual deficits anticipated on the opening of the King George's Dock, and it may be of interest to compare the position of March 31st, 1930, with that forecasted in 1924 when the Commissioners decided upon this policy.

King George's Dock.

It was then anticipated that there would be a deficit on the first year of working King George's Dock of Rs. 1,754,000 and that the Revenue Reserve Fund at the end of that year would amount to Rs. 8,264,000. The actual deficit was about Rs. 4 lakhs in excess of the forecasted figure, but this excess would not have occurred but for the contribution of Rs. 415,362, which had to be made to the sinking fund on account of the depreciation of securities. This contribution will come back to revenue in future years because the sinking fund is invested entirely in Port Trust Debentures, which it will not be necessary to sell, and any interest earned in excess of 4 per cent. the assumed rate of improvement on which contributions are based is credited to the revenue of the year in which it is earned.

The Revenue Reserve Fund amounted on March 31st, 1930, to over Rs. 12,650,000 or Rs. 44 lakhs in excess of the amount anticipated. The results up to the end of the year 1929-30 may, therefore, be regarded as favourable, and if conditions were normal, there would be every reason to anticipate the success of the policy adopted in 1924. Traffic, however, had already begun to fall off before the end of the year, and at the time of writing trade is in such a depressed condition that an increased deficit on the working of 1930-31 is certain in spite of any economies which can be effected. Some important capital works remain to be carried out, but it will be necessary to defer them until there is a definite sign of trade reviving.

Calcutta's Foreign Trade.

The acute depression in trade is reflected by the Calcutta Customs trade returns for August. The export trade of Calcutta with foreign countries in August, showed a sharp decline. The value fell from Rs. 8.07 crores in July to Rs. 7.01 crores, states a note issued by the Collector of Customs.

The import trade, however, recorded a slight improvement over the preceding month's figures, the value rising from Rs. 4.36 crores to Rs. 4.51 crores. Compared with the corresponding period of last year both suffered a severe setback, imports dropping by Rs. 3.01 crores, and exports by 6.26 crores in value. The variations in the value of the principal imports as compared with the figures for August, 1929, are shown below by a plus or minus sign prefixed:—

	In Lakhs of Rupees
Cotton Goods	87 (—1.64)
Machinery	53 (—5)
Oils, mineral	48 (—4)
Sugar	35 (—35)
Iron and Steel	34 (—15)
Other Metals	16 (1)
Instruments, Electrical	12 (1)
Hardware	11 (—7)
Betelnuts	10 (1)

Almost all the principal commodities of imports fell in value in consequence of the general depression in trade. Cotton goods suffered most. The yardage of piece goods contracted from 92 million yards to 37 million yards and the value dropped from 2.21 crores to Rs. 73 lakhs. There were heavy importations of kerosene from Azerbaijan, but due to small receipts of kerosene from America and lower prices of lubricating oil, the total value declined by Rs. 4 lakhs. Sugar, too, was dull. The quantity of refined sugar receded from 42,800 tons to 27,800 tons, and the value fell from Rs. 66.59 lakhs to 31.49 lakhs. Iron and steel also recorded a sharp decline, the value dropping by 15 lakhs.

The fluctuations in the values of the principal exports as compared with the figures for August, 1929, are indicated by the following table:—

	In Lakhs of Rupees
Jute Manufactures	2.96 (—2.45)
Tea	1.80 (—1.20)
Jute, raw	58 (—79)
Linseed	38 (—42)
Hides and Skins	25 (—21)
Lace	14 (—38)
Iron, pig	14 (—11)
Grain, Pulse and Flour	13 (—14)

The export trade was even more slack than the import trade. All commodities suffered. The prices of both raw and manufactured jute were very poor. Gunny bags went mostly to Australia and gunny cloth to the United States. Raw jute was taken largely by Germany. Tea and linseed went mostly to the United Kingdom. Germany took most of the hides and the United States most of the skins. Lac, which was taken largely by the United States, fetched very poor prices. Pig iron continued to go mostly to Japan and rice to Cuba.

General.

According to returns received in the Department of Commercial Intelligence and Statistics, the total export of raw jute from Bengal ports during August, 1930, amounted to 138,398 bales of 400 lbs. each, of which 136,511 bales were exported from the Port of Calcutta and 1,887 from other ports.

The Junior Institution of Engineers.

The following meetings are due to take place during November:—

Friday, 7th November, at 39, Victoria Street, S.W.1, at 7.30 p.m. Informal meeting. Lecture, "Luminous Electric Tubes (Neon, Helium, etc.)," by H. Marryat, M.I.E.E. (Slides and Exhibits).

Friday, 14th November, at 39, Victoria Street, S.W.1, at 7.30 p.m. Annual general meeting and election of officers.

Friday, 21st November, at 39, Victoria Street, S.W.1, at 7.30 p.m. Informal meeting. Lecture, "Ancient Clocks and Horological Curiosities," by R. P. Howgrave Graham, M.I.E.E., F.S.A. (illustrated by slides and exhibits).

The Port of Galle.

According to the annual report of the Port Surgeon, Galle, 78 steamers and 20 sailing vessels called at the Port of Galle during the year 1929, as against 91 and 25, respectively, in 1928. These were all duly inspected, and nine steamers and 19 sailing vessels were granted free pratique. Sixty-nine steamers and one sailing vessel were allowed to work in simple quarantine. No infected vessel called at the Port during the year.

The income was as follows:—Bills of health, 29 at Rs.10.50, Rs.304.50 ; disinfection of linen, etc., 433 cradles at Rs.2, Rs.866; disinfection of sacks, etc., 45 cradles at Rs.1, Rs.45; disinfection of sacks, etc., 912 cradles at 50 cents, Rs.456.

Wireless Telephone for "Empress of Britain."

The new Canadian Pacific Liner "Empress of Britain," which was launched in June by the Prince of Wales, will carry one of the latest Marconi short wave wireless telephone installations when she enters the Atlantic service next year. This equipment will allow passengers to communicate with other telephone subscribers in Europe, Canada and the United States through appropriate land stations, and the "Empress of Britain" will thus form another link in the telephone network of the world.

The input power to the transmitter will be 20 kilowatts, and the installation will be similar to that used recently by the Marchese Marconi on his yacht "Elettra" when he spoke from the Mediterranean to London, Buenos Aires, Rio de Janeiro, New York, Montreal, Bombay, Cape Town and Sydney, covering practically all the world.

With this equipment therefore the "Empress of Britain" will also be able to take advantage of future extensions of the telephone systems to link up with additional land line systems at almost any distance, and giving a world-wide telephone range from the ship.

Port of Southampton Topics.

Further Extension at Southampton Docks.

THE shipping position at Southampton is changing rapidly, and recent weeks have seen the advent to the port of new lines and new services. In view of the known demand on the space which will be available when the present docks extension works are completed, the Southern Railway, who own and operate Southampton Docks, have had to address themselves to the problem of the future. That a further stage of docks extension would be necessary within the next ten years has been apparent to those who know the true position, and owing to the fact that the Government have agreed to render financial assistance under the Development (Loans, Guarantees and Grants) Act, 1929, the Southern Railway have decided to embark forthwith on a further section of the extension scheme.

This will comprise about 3,500-ft. of deep water quay, suitable for the accommodation of vessels of 40-ft. draught, together with all cranes, sheds, railway, and every sort of modern equipment, at an estimated cost of about £3,000,000, taking some five years to complete. About two hundred acres of mud-land at present washed by the tide will be reclaimed and converted into factory and industrial sites, almost unique in their proximity to deep water berths and in being thoroughly served with rail access to all parts of the country.

Work was begun on the site on October 23rd, the day after the company's announcement was made. The new section will involve the continuation of the deep water quay wall, now in the course of construction, and when this and the present work is completed Southampton will have 7,000-ft. of new berthing accommodation to offer the world's biggest ships.

As in the case of the first section of the work, the preliminary step on the second will be to form a reclamation bank by depositing dredged material. Afterwards monoliths will be sunk through this bank into the bed of the River Test, and as far as can be ascertained the procedure will be the same as with the dock wall at present being built.

It seems likely, however, that whereas seventy-eight 7,000-ton monoliths were required for the first section of the £13,000,000 extension scheme, a lesser number—possibly 70—will be needed for the second portion.

Of the 3,800-ft. of new dock wall being provided by the first section of the scheme, now well in hand, 3,500-ft. will be available for shipping, so that with the further 3,500-ft. to be constructed there will be a straight stretch of quay of 7,000-ft. The first 3,500-ft. of this will be fronted by water at a depth of 45-ft. l.w.o.s.t., but until such time as necessity demands a greater depth it is probable that the remaining length will be fronted by 40-ft. of water l.w.o.s.t.

Four passenger and cargo sheds will be built upon the dock wall, which will result from each of the two sections of the scheme, making eight in all.

The James Dredging, Towage and Transport Co. will be starting very shortly upon the gigantic task of depositing the 3,500,000 tons of dredged material which will be required to complete the reclamation of the 187 acres of mud-land which have been enclosed under the first section of the scheme. Later the second reclamation will be undertaken. This covers an area of 228 acres, but it seems improbable that more than 178 acres will be reclaimed at first. These reclamations will provide a number of splendid factory and industrial sites.

Since the second section of the new quay wall will not link up with the railway approach at Millbrook, an earth bank will be built to connect the two, thus completely enclosing the area which is to be won from the River Test.

Later the 50 acres of mud-land lying between the western or up-river end of the second reclamation and Millbrook Point is to be recovered, and a portion of this has been earmarked from the very inception of the scheme for one or possibly two giant graving docks.

When traffic requires it a long jetty will be constructed parallel to the 7,300-ft. of the new quay wall provided by the first and second sections. The inner side of this jetty will be separated from the straight 7,300-ft. of quay wall by 600-ft., and a deep water basin will thus be formed. The jetty will provide about 4,000-ft. of quayage on the inner side, and nearly 5,000-ft. on the outer side, so that somewhere in the region of 16,000-ft. of deep water quay will be furnished by the scheme in its entirety.

Under the original scheme, which was to provide five 1,000-ft. piers, only 10,000-ft. of additional quayage would have been available for shipping. The scheme upon which work is proceeding is therefore immeasurably superior.

The berths which will become available when the jetty is built will also be fronted by water at a depth of at least 40-ft. l.w.o.s.t., which will represent the minimum depth adjacent to any berth created by this vast extension project.

New Arrivals at Southampton.

October has been remarkable for the number of new arrivals at the port. Two new services, or rather developments of existing services, have been initiated, and two new liners, both the "last word" in modern, luxurious ocean travel, have made their first appearance here.

The two new vessels were the Nederland Royal Mail liner "Marnix van Sint Aldegonde" and the Union Castle new motor vessel "Winchester Castle." When the Dutch boat called she was inspected by the Mayor and members of the Corporation and by all the prominent shipping people of the port.

A sister ship of the "Johan van Oldenbarnevelt," which made her maiden voyage in the spring, the "Marnix" is of 19,000 tons. These two vessels are the largest trading to the Dutch East Indies. The traffic on this route, both passenger and cargo, has increased considerably of late, and the increase in the size of the vessels is an indication of the flourishing state of business. The "Marnix" is a delightful example of the ship builder's art. The public rooms are charmingly decorated in an original fashion, and the comfort of the traveller has been studied throughout. The vessel can carry 298 first-class passengers, from 274 to 363 second-class, and from 64 to 99 third-class passengers.

The "Winchester Castle," which is of 20,000 tons, is the latest vessel to be completed for the company's mail service between England and South Africa. She is designed with two low funnels, one of which is used as a store-room. Her accommodation for 756 passengers in first, second and third classes represents an improvement on that hitherto provided on this route. The propelling machinery consists of two 8-cylinder double acting 4-stroke motor engines of the Harland-B. and W. type, each coupled direct to a propeller.

British India Company making Southampton their Principal Passenger Port.

Another interesting event of October has been the addition of the British India Company to the list of organisations with services based on the port. The company have decided to make Southampton the principal passenger port for their outward service to Bombay and Karachi, and the call of the "Dumana" in the first week of the month was the first practical step in that direction. The "Dumana" was followed, towards the end of the month, by the "Domala," while in December the "Mundra" and the "Warfield" will call. It is probable also that other vessels will call in the intervening period.

Another caller at the beginning of the month was the "Rawalpindi," the first of the bigger P. and O. liners to utilise the port in connection with the development of the P. and O. Company's service to the Straits, China and Japan. In due course other vessels will follow, the company having decided to allocate several larger vessels to this service.

Decrease in September Figures.

The September returns for Southampton Docks give little grounds for enthusiasm, for every classification shows a decrease as compared with the figures for the corresponding period last year. The general depression is, of course, mainly responsible, and since the situation is fairly general there is no reason for alarm. The number of vessels inward fell from 382 to 377, and outward from 373 to 367. This falling off was reflected in three of the four tonnage headings, for only the gross tonnage inward showed an advance. The inward returns jumped from 1,741,505 tons gross to 1,742,109 tons, an advance of 604 tons, but the outward total fell from 1,735,016 in September, 1929, to 1,632,038, a decrease of 102,978 tons. The inward tonnage totals dropped by 12,725 inward and 67,246 outward, the respective returns being 911,741 inward, against 924,466 in September last year, and 854,419 as compared with 921,665.

Cargo was nearly 13,000 tons down, for whilst the inward total increased by 961 tons, no doubt due in large measure to the heavy shipments of fruit received from the Cape, the outward decline was 13,930 tons. The figures were 59,958 tons inward, as against 58,997, and outward 36,206 tons, as compared with 50,136. Passengers and troops also showed a falling off. Inward passengers totalled 39,993, an increase of 638 in comparison with September, 1929, when the figure was 39,355, and outward the total fell to 34,216 from 38,301, a decline of 4,085.

New Cunard Liner and Dry-docking Facilities.

The provision of dry-docking facilities for the giant new Cunard liner which is to be built by Messrs. John Brown and Co., Ltd., of Newcastle-on-Tyne, has been exercising the minds of those concerned at Southampton, which will be the vessel's home on this side of the Atlantic,

Port of Southampton Topics—continued.

It is, of course, necessary that there should be adequate facilities for dry-docking the liner here, and the question of accommodating a ship of between 60,000 and 70,000 tons is naturally a difficult one. Discussions have been proceeding between the Southern Railway Company (the owners of the docks), the Cunard Line and the builders. The Southern Railway, naturally, do not desire to build another floating dock nor a graving dock if there is any possible alternative. In this connection it may be recalled that the existing 60,000-ton floating dock was built in such a manner that it could be lengthened if necessary. When it left the yard of Sir W. Armstrong Whitworth and Co., Ltd., at Newcastle-on-Tyne, it comprised, as it does to-day, seven sections, and the idea was that one or more additional sections could be added if the length of ships increased.

The new Cunarder, if she is to be accommodated on the present structure, certainly raises the need which was foreshadowed, and it now remains for it to be determined whether, in the event of the dock being lengthened, it could bear the additional weight.

The present dock is capable of lifting, under certain conditions, 70,000 tons, and from the point of view of length and breadth it will hold the new Cunarders. The question of its ability to meet the requirements rests on several technical points. The lifting powers depend largely on the placing of the weight. It is generally felt that the existing dock can be altered, and that it will not be necessary to build a new dock.

Winter Overhaul Programmes of Big Liners Arranged.

The big shipping concerns using Southampton as the home port of their express liners, notably the Cunard, White Star and Canadian Pacific Companies, have arranged their winter overhaul programmes, which, as in previous years, will afford a considerable amount of employment. Hopes, however, are not too bright in the local ship repairing yards in the coming months, for constructional work promises to be practically nil, and it is doubted whether the shipping companies will be prepared to spend more money than is absolutely necessary on account of the bad summer which has been experienced.

The majority of the largest liners using the port will be laid up for four or five weeks, as is usual, but the Cunarder " Berengaria " will have a far more lengthy stay in dock. She will come off the Southampton-New York service on November 4th and will not re-enter the North Atlantic passenger business until February 25th. She is to have a thorough engine overhaul, and particular attention will be paid to her port low pressure turbine, which has been giving trouble. It is probable, also, that the opportunity will be taken to increase the liner's tank capacity for fuel oil. If that is done the " Berengaria " will be able to carry 2,000 more tons of fuel than at present. The " Berengaria " will be on the floating dock for 77 days.

The "Homeric," "Olympic," "Majestic," "Aquitania," and " Mauretania " will lay up in that order for varying periods from November to February. As the floating dock is booked for the " Berengaria " for so long, the other vessels, with the exception of the " Majestic," which is too big to be accommodated anywhere but on the " floater," will go into the Trafalgar graving dock.

But for the fact that space in the dock will not permit of too many berths being occupied for long periods, the Red Star liner " Lapland " would probably have undergone her overhaul at Southampton during the winter. The " Belgenland," too, was to have been dry-docked here, but the arrangement has now been cancelled.

Orient Line to Call at Southampton from Australia.

The Orient Line have decided to send their homeward steamers to Southampton again during the busiest part of the passenger season from Australia. This has been found to work admirably in recent years, and in the early part of this year six of the vessels made their landings at Southampton instead of at Plymouth. It is probable that the vessels will begin to come about next March.

The Java boats continue to do excellent passenger business from Southampton, and although it is near the turn of the passenger season, the outward bookings are very good. The larger and faster vessels placed on this service have done exceedingly well.

Annual Meeting of the Institute of Marine Engineers.

At the annual meeting of the Institute of Marine Engineers last week, the president drew attention to the serious position in which British shipping now stands, owing to the fact that there is practically no reserve of fuel or Diesel oil in this country.

Sir August Cayzer warned those shipowners who are contemplating the use of oil on a large scale that any international complication might raise the price of this fuel to a ruinous figure unless steps were taken to ensure a supply of oil distilled from British coal.

A great development has been recorded already in connection with the extraction of oil from coal, and for the benefit of non-technical readers some explanation of this situation may now be opportune.

Firstly, it should be stated that in all processes of distillation or carbonisation, whether at high or low temperatures, two primary volatile products are obtained. These two products must not be confused one with the other.

The coal is heated in some form of retort, and a varying volume of gas is released. This gas is passed through a precipitator, where a comparatively large quantity of oil condenses and is extracted. Such oil, when it results from carbonisation of coal in a coke oven or a town gas plant operating at a high temperature, is known as tar. When the coal is treated by the low temperature carbonisation method this resultant product is usually called coal oil.

The gas from either variety of plant then passes on its way to the domestic consumer, or the gas furnace as the case may be. Before reaching its destination, however, this gas is usually subjected to a process known as " scrubbing " in order to remove a comparatively small quantity of light and valuable spirit. Such spirit, when scrubbed from a gas generated by high temperature carbonisation, is benzole; and when it emanates from the gas produced by a low temperature carbonisation plant it is coal petrol.

Benzole and coal petrol are somewhat similar commodities, and the amount recovered in each case varies between two and three gallons per ton of coal carbonised. Both these spirits have a high aromatic content, and are therefore much sought after by distributors of motor fuel for blending with petrol, in order to give the resultant mixture better anti-knock properties.

We must now return to the subject of the heavier oil, which presents the problem of the day. The yield of tar and coal oil is some six or seven times greater per ton of coal carbonised than that of the spirit referred to above, and it is, in addition, a much more difficult commodity to dispose of.

Coal tar, which is the product of high temperature carbonisation, is a sticky substance of high specific gravity, and up to the present it has defied all efforts to convert it into a light spirit suitable for use in internal combustion engines.

Coal oil, on the other hand, owing to the fact that the temperature at which it has been distilled from the coal is very much lower, is altogether more volatile. The pitch having been extracted, the remaining oil can be cracked by the vapour phase process, or even commercially hydrogenated. The former treatment results in a third of the coal oil by volume being converted into a high-class motor fuel, the remaining two-thirds becoming a good fuel oil eminently suitable for burning under boilers, either ashore or afloat. In other words, by a combination of low temperature carbonisation and vapour phase cracking, a yield of approximately seven gallons of petrol and six gallons of fuel oil can be obtained from one ton of good quality Yorkshire coal.

Hydrogenation can be applied to either coal or oil for the production of a light spirit. Experiments however, have not so far advanced much beyond the laboratory stage. Owing to the extremely high pressures employed and capital cost of the plant is very heavy, and this, togther with the high price of hydrogen itself, indicates that the commercial application of this invention is as yet far distant. It is very doubtful if coal itself can ever be commercially hydrogenated, though the process may have a future when applied to coal oils.

The coalite resulting from the low temperature process will also assist in solving the pressing problem of atmospheric pollution; and there are many other valuable by-products from the carbonisation of coal with which space will not permit one to deal here.

Enough has been said, however, to show that " Old King Coal " is still actively on the offensive against his foreign rival, Oil.

There is no question that public opinion has, of late, been thoroughly roused on this subject, and many far-seeing men realise the grave danger in which our country would stand should we find ourselves without a home supply of oil and petrol in time of war.

The Government, by allowing a preference of 4d. per gallon on all home-produced motor fuel, has given a good start off to this new industry, and it is to be hoped that this principle will be continued or even expanded.

The Port of London Authority.

London's Shipping.

During the week ended September 26th, 1,236 vessels, representing 1,022,339 net register tons, used the Port of London; 523 vessels (810,124 net register tons) were to and from Colonial and foreign ports and 713 (212,215 net register tons) were engaged in coastwise traffic.

Seven vessels discharged meat cargoes during the week; five from Australia and New Zealand, the "Cathay," "Rotorua," "Surrey," "Port Denison" and "Orama," and two from South America, the "Sultan Star" and "Highland Chieftain." Altogether some 140,000 carcases of lamb and mutton, nearly 100,000 quarters of beef, quantities of pork and rabbits and 39,000 packages of sundries were distributed to the London Market and throughout the country or placed in cold storage.

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During the week ended October 3rd, 909 vessels, representing 908,168 net register tons, used the Port of London. 550 vessels (745,147 net register tons) were to and from Colonial and Foreign ports, and 359 (163,021 net register tons) were engaged in coastwise traffic.

Four vessels discharged meat cargoes during the week; two from Australia and New Zealand, the "Limerick" and "Euripedes," and two from South America, the "Rodney Star" and "Dunster Grange." Altogether nearly 63,000 carcases of lamb and mutton, some 90,000 quarters of beef, quantities of pork and rabbits, and 30,000 packages of sundries were distributed to the London Market and throughout the country or placed in cold storage.

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During the week ended October 10th, 1,095 vessels, representing 1,013,666 net register tons, used the Port of London; 504 vessels (835,426 net register tons) were to and from Colonial and foreign ports and 591 (178,240 net register tons) were engaged in coastwise traffic.

Six vessels discharged meat cargoes during the week; four from Australia and New Zealand, the "Mooltan," "Argyllshire," "Esperance Bay" and "Corinthic"; and two from South America, the "Andalucia Star" and "Highland Princess." Altogether over 153,000 carcases of lamb and mutton, some 90,000 quarters of beef, quantities of pork and rabbits, and 34,000 packages of sundries were distributed to the London Market and throughout the country or placed in cold storage.

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During the week ended October 17th, 1,093 vessels, representing 934,032 net register tons, used the Port of London. 595 vessels (731,034 net register tons) were to and from Colonial and Foreign ports and 498 (202,998 net register tons) were engaged in coastwise traffic.

Six vessels discharged meat cargoes during the week; three from Australia and New Zealand, the "Remuera," "Port Gisborne" and "Herminius"; two from South America, the "Stuart Star" and "Baronesa"; and one from South Africa, the "Guildford Castle." Altogether some 210,000 carcases of lamb and mutton, nearly 85,000 quarters of beef, quantities of port and rabbits, and 39,000 packages of sundries were distributed to the London Market and throughout the country or placed in cold storage.

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During the week ended October 24th, 983 vessels, representing 1,003,906 net register tons, used the Port of London. 570 vessels (818,933 net register tons) were to and from Colonial and Foreign ports and 413 (184,973 net register tons) were engaged in coastwise traffic.

A working record was created during the week, when on one afternoon tide no less than 16 vessels aggregating over 132,000 net register tons were locked in or out of the Royal Docks.

Nine vessels discharged meat cargoes during the week; three from Australia and New Zealand, the "Bendigo," "Meriones" and "Rangitiki," and one from South Africa, the "Llangibby Castle," four from South America, the "Avelona Star," "Highland Brigade," "Aurigny" and "Tuscan Star," and one from Iceland, the "Bruarfoss." Altogether some 175,000 carcases of lamb and mutton, nearly 120,000 quarters of beef, quanties of pork and rabbits, and 41,000 packages of sundries were distributed to the London Market and throughout the country or placed in cold storage.

London Eats More Fruit.

The success of the direct shipment of bananas from the West Indies to London has necessitated two additional steamers being commissioned. The first additional ship, the "Celalu," of the Jamaica Direct Fruit Line, arrived in the East India Docks on October 7th with 43,000 bunches of bananas, and so expeditious were the discharging and distributing facilities that the whole of the consignment was unloaded and available for the markets on October 9th.

London's New Dock.

London's new timber dock, the Lavender Dock, has just been brought into commission. The first ships to use it are the s.s. "Dea" and s.s. "Neath Abbey" with cargoes of softwood from Kara sea ports.

The Lavender Dock is the latest addition to the Surrey Commercial Docks system and has been developed from two ponds known as the Lavender and Acorn Ponds, in which for more than a century Oregon pine and other imported timbers which season when immersed in water have been stored.

The new quay is long enough to accommodate seven average-sized timber vessels. Alongside the discharging berths are sheds of the latest design capable of storing some 30,500 tons of timber. Altogether the Port of London Authority now have sheds covering 70 acres for the storage of timber at the Surrey Commercial Docks and a further 69 acres for open storage.

Over 2,000,000 tons of timber are brought into the Port of London annually, over a quarter of the total imported into the United Kingdom.

The Junior Institution of Engineers.

At the opening meeting of the Fiftieth Session of the Junior Institution of Engineers, Mr. S. J. Crispin, of Cornwall, gave an illustrated lecture tracing the development of bridge construction from the primitive method of bridging a stream by felling a tree across it to the mammoth structures recently placed across the Tyne and that now completing across Sydney Harbour.

In tracing the evolution of the three main types of bridges, viz., the girder bridge, the suspension bridge and the arch bridge, he showed many examples of wood, stone, wrought and cast iron and steel construction to be found in Cornwall where the genius of Brunel as a bridge designer was prominently displayed.

In comparing the relative advantages in stone bridges of those employing gothic or pointed arches and semi-circular arches, the author showed, by super-imposing arches of both types of equal span the distribution of stresses caused by a load placed at the same height above each arch, and considered the pointed arch to be more suitable for a load placed directly over its crown, e.g., a church tower, but the semi-circular arch was better for a moving load.

The antiquity of the arch had been confirmed by discoveries made during recent excavations at Ur of the Chaldes where an arch over doorways in a royal tomb of the first dynasty of Ur, 3200 years B.C. has been found.

The first iron bridge constructed in England, possibly in the world, was at Coalbrookdale, erected by Abraham Darby in 1779. Wrought iron as a bridge-building material came after cast iron. Fairbairn first used plates and angles rivetted together, this method gave great impetus to iron bridge construction.

In describing Brunel's bridge at Saltash across the Tamar, a longitudinal view of the upper surface of one of the oval arched tubes 16-ft. 9-in. by 12-ft. 3-in. from which depend the suspension members showed a rail fixed some 4-in. above the surface of the tube designed to facilitate the passage of workmen across the top of the tube the toes being placed under the rail and the man proceeding sideways; a handrail was later provided.

Practically all the wooden trestle viaducts and bridges in Cornwall had now been superseded by other structures, but at Treliever was one having stone piers up to within 35-ft. of rail level, upon these, radiating beams were placed to carry the super-structure. This bridge like many of Brunel's is curved, which he considered increased its stability.

The suspension bridge in its various forms was illustrated by many examples concluding with the largest structure of this type now in course of erection, that across the Hudson River at New York.

Bridges of the cantilever type comprised the Forth Bridge and the Tower Bridge and the lecture concluded with some interesting details of the construction of the Sydney Harbour Bridge.

Bombay Harbour Matters.

Bombay's Foreign Trade.

THE aggregate of the foreign trade of Bombay—imports and exports—for August, 1930, amounted to Rs.10.34 crores, showing a fall of Rs.2.21 crores, or 17 per cent., as compared with the figures for the corresponding month of the previous year. This is due mainly to the reduced shipment of both Indian and foreign merchandise. Imports of treasure, however, showed substantial improvement.

Imports of merchandise were valued at Rs.3.53 crores, showing a decrease of Rs.2.59 crores, or 42 per cent., due chiefly to smaller arrivals of most of the principal articles of import, the more important among them being: cotton piece goods, nearly 26 million yards (Rs. 74.85 lakhs); sugar, 21,160 tons (Rs.46.5 lakhs); silk manufacture (Rs.18.74 lakhs); wool manufactures (Rs.14.98 lakhs); cotton twist and yarn, nearly one million lbs. (Rs.14.27 lakhs); motor-cars, including motor wagons, cycles and parts thereof (Rs.11.44 lakhs); mineral oils, nearly 750,000 gallons (Rs.10.68 lakhs); other manufactures of cotton (Rs.10.48 lakhs); metals and ores (Rs.9.88 lakhs).

The only article which showed a noticeable increase was raw cotton, plus 1934 tons (Rs.20.57 lakhs). Imports of gold rose by Rs.1.63 crores to Rs.2.06 crores, and imports of silver by Rs.2.16 lakhs, Rs.90.43 lakhs. The total collections of import duty amounted to Rs.7,319,728, of which Rs.372,961 represented the duty on articles of luxury, as against Rs.10,276,714 in August, 1923, and Rs.8,345,920 in July, 1930.

Indian Produce.

Exports of Indian produce were valued at Rs.4.1 crores, as against Rs.5.14 crores in the same month last year, showing a decrease of Rs.1.04 crore, or over 20 per cent., owing mainly to smaller shipment of seeds (—19,610 tons, Rs.45.94 lakhs); cotton manufactures (Rs.14.8 lakhs); grain pulse and flour (—6,169 tons, Rs.13.32 lakhs); hides and skins, raw and tanned (Rs.6.11 lakhs); manganese ore (14,563 tons, Rs.4.88 lakhs). Shipments of raw cotton, however, advanced by 9,566 tons in quantity and by Rs.7.08 lakhs in value. Exports of silver amounted to Rs.1,172 only, as against Rs.3.69 lakhs in the same month last year. The re-export of foreign merchandise declined by Rs.18.2 lakhs to Rs.24.13 lakhs.

Bombay Port Trust Revenue.

The Administration Report of the Bombay Port Trust for the year 1929-30 states that during the first eight months of the year there was a good improvement in trade conditions. A setback caused by the general depression brought about by the fall in world prices of raw commodities were experienced in the closing four months of the year, resulting in a fall in exports at the docks of 167,000 tons, as compared with the corresponding period of the preceeding year. The value of the trade of the port as shown in Customs returns (inclusive of Government transactions) was Rs.237 crores, as compared with 257 crores in the previous year. The cargo handled at the docks and bunders amounted to 6,688,000 tons, a decrease of 19,000 tons as compared with the volume of the previous year. The most noticeable feature in the import trade of the year was the expansion in bulk petrol, the importations of which rose from 15 million gallons in 1928-29 to 22 million gallons in 1929-30. In pursuance of the Trustees' undertaking to sanction progressive reductions in the wharfage on this commodity in proportion to the increased receipts until a normal rate of wharfage was applicable, the Board reduced the wharfage rate from nine to six pies per gallon with effect from April 1st, 1930. Since the opening of the Pir Pao bulk oil pier in 1922, the imports of bulk petrol have risen from four million to 22 million gallons. Including the present reduction, the wharfage rate has been progressively reduced from eighteen pies to six pies per gallon.

Fourteen thousand motor cars and lorries were imported as against 8,000 in the previous year. In the export trade, there was a further recovery in Bombay's staple export commodity, viz., raw cotton, the number of bales exported during the year under review being 2,793,000 as against 2,656,000 bales in the previous year, and 1,784,000 bales in 1927-28.

Surtax on Dock Charges Reduced.

The Budget expectations of the Bombay Port were more than fully realised, the actual receipts amounting to Rs.287.07 lakhs, or Rs.6.58 lakhs more than the estimates. The actual expenditure for the year was Rs.276.23 lakhs. As compared with the actual expenditure for the previous year, the expenditure for the year under review shows a decrease of Rs.2.72 lakhs. The Trustees reduced the surtax of 50 per cent., which had been levied since January 1, 1922, on the majority of the dock and bunder charges to 33 1/3 per cent., entailing a reduction of Rs.16.83 lakhs in the revenue estimates.

There was no increase in port or dock charges during the year. Inclusive of the reduction in surtax from April 1st, 1929, the Trustees have reduced rates and charges during the last four years to the extent of over 30 lakhs per annum without impairing their financial position or depleting their accumulated reserves. Since the close of the year, the Trustees have abolished, with effect from July 1st, 1930, the surtax of 25 per cent. on charges for pilotage, transporting, attendance and warping fees introduced in 1923-24 to balance the expenditure under Pilotage Account. This will mean an additional relief of about Rs.1 lakh per annum to the shipping of the port.

Shipping Company's Loss.

That the Scindia Steam Navigation Company, Bombay, lost Rs.5.72 lakhs in a year's working was the startling revelation made at the eleventh meeting of the company held in Bombay on September 17th. The most important factor which accounted for this loss, Mr. Walchand Hirachand, who presided, explained, was the prevailing low basic rate of freight at which Indian shipping companies had to carry cargo. The shipping conference at the beginning of the year were persuaded to make a small increase in the basic rate—from Rs.11 to Rs.12 per ton— for freight between Rangoon and Bombay, but shortly after this was brought into operation, he said, the non-Indian companies reverted to the old rates with retrospective effect, and this had meant a loss of Rs.4 lakhs in revenue to the Scindia Company. He denied emphatically that the company stood for a higher rate of freight; what they wanted was an equitable and economic rate of freight which suited the particular circumstances of the trade. He hoped that the goodwill and co-operation of the shipper and judicious and careful exercise of a policy of retrenchment which was to be adopted would enable the company to face the situation. Concluding, the Chairman referred to the recommendation of the conference on the operation of Dominion legislation and merchant shipping legislation that the existing restrictions on the Dominion Parliament's power to enact legislation in respect of merchant shipping, so as to regulate their coastal trade in such a manner as it liked, should be removed, and demanded that India should have full and complete power to enact legislation on these lines. He recommended the Government of India to take prompt steps to make Coastal Traffic Reservation Bill a law in the land.

The Institution of Civil Engineers.

The opening meeting of the Institution of Civil Engineers takes place on Tuesday, November 4th, at 6 p.m. An address will be given by Sir George William Humphreys, K.B.E., president, and presentation of medals awarded by the Council will follow.

The president will receive the members in the Great Hall after the meeting.

Useful Pamphlet for Excavating Engineers.

Messrs. Ruston-Bucyrus, Ltd., the well-known manufacturers of excavating machinery, and whose works are at Lincoln, England, have just issued a publication R.B. 1043 which has been prepared for the use of engineers concerned with excavations.

The information contained therein—Metrical Equivalents, Conversion Tables, Weights of Materials, etc.—has been carefully compiled with the object of including all the information which excavating engineers are likely to require.

Messrs. Ruston-Bucyrus, Ltd., will be pleased to send a copy of this new publication to any of our readers who are interested.

Kiel Canal Traffic in August, 1930.

A report received by the Department of Overseas Trade from the Acting British Consul-General at Hamburg states that the traffic passing through the Kiel Canal during August compared with the previous month was as follows: August, 5,445 vessels, 2,170,068 net reg. tons; July, 5,460 vessels, 2,351,207 net reg. tons.

Of the 5,445 vessels, 2,439 with an aggregate of 1,934,664 net reg. tons were registered seagoing steamers, including 2,308 freight and passenger steamers of 1,928,652 net reg. tons; 125 steam tugs of 5,434 net reg. tons; 6 fishing steamers of 578 net reg. tons.

Further, 2,431 sailing vessels of 128,303 net reg. tons; 142 lighters and barges of 52,972 net reg. tons; and 433 pleasure and government vessels of 54,129 net reg. tons.

The vessels were loaded as follows: 86 with passengers; 22 with cattle; 191 with coal; 101 with stone; 67 with iron; 523 with timber; 778 with grain; 49 with ore; 827 with other bulk goods; 1,015 with general cargo; 116 with miscellaneous cargo, and 1,670 empty or in ballast.

Personal enquiries regarding shipping and transport matters should be made at the City Office of the Department (Shipping and Transport Section), 73, Basinghall Street, London, E.C.2.

Large Dredger Launched for Service at Durban.

THERE was launched on October 23rd, 1930, from the Renfrew yard of Messrs. Wm. Simons and Co., Ltd., what is probably the largest dredger ever turned out from the Clyde. This notable dredger, the " Rietbok," has been constructed to the order of the South African Railways and Harbours Administration for service at Durban.

The vessel is a twin-screw suction hopper dredger of the Bar type, with a length of 382-ft. and a hopper capacity of 5,000 tons. She is designed to dredge to a depth of 70-ft. of water and to fill her own hopper in less than 60 minutes.

The " Rietbok " was designed and constructed throughout, including the powerful dredging and propelling machinery, in the builder's own establishment, and embodies Simons' Patent Hopper Baffles, as well as many other interesting devices.

The design includes certain special features to meet the requirements of Captain Stephens, port captain at Durban, and the construction has been carried out under the supervision of the Administration's consulting marine engineer, Mr. W. W. Fawcett, M.I.Mech.E., M.I.M.A.

It is interesting to recall that this is the 20th dredger built for Durban by Messrs. Simons, who are the pioneers in this country of the suction dredger. The history of their long connection with the port of Durban, extending over a period of nearly 50 years, epitomises the later history of that great branch of human endeavour represented by harbour development and gives one an insight to the reasons underlying the rapid expansion of trade which occurred towards the end of last century.

Durban is one of the many great ports whose very existence depends on the continual maintenance of its waterways by dredging. Our own River Clyde, though not hampered in the same way as Durban Harbour by enormous deposits of shifting sand, is nevertheless an outstanding example of the facilities afforded by dredging.

Up till 1889 a limited depth of water was achieved at Durban in varying degrees of constancy by bucket dredgers which, of course, could only work in fairly calm water. In rough sea conditions, of which there is much on the coast of Natal, the channels quickly silted up again, and it was a common occurrence for the large vessels trading to these ports to be obliged to lie tossed about outside the harbour and sling their goods and passengers overboard to small craft for landing. Travel in these days was fraught with some excitement and danger.

By that time, however, the growth of trade was such that the continual menace of the sand bar outside the harbour had become intolerable, and Messrs. Simons were consulted as to the best means of overcoming the difficulty. After close consideration and experimenting a suction dredger was suggested, the result being that in 1890 the " Beaver," which was the first of its kind built in this country, was put to work at Durban.

The results given by this small experimental vessel were so encouraging that in due course larger and more powerful suction dredgers, ranging from 1,250 to 3,000 tons hopper capacity were acquired from the firm, until we reach the high-water mark of size in the vessel christened " Rietbok " with befitting ceremony by the wife of the High Commissioner for the Union of South Africa, Mrs. te Water, in the presence of the High Commissioner and a large company.

The result of the foresight of the Durban authorities is evinced in the ability of the largest vessels to enter their harbour safely at all times, and in the rapid growth and expansion of their trade.

This little history is scarcely complete without mention of the effect on the Mother Country of the lead given by Durban in harbour improvement. Our own port on the Mersey had long been faced with a similar problem, and the consequent prospect of seeing its splendid economic situation nullified by other ports possessing the advantage of deep natural channels. Hearing of the " Beaver's " success, the Mersey Docks and Harbour Board entrusted Messrs. Simons with the equipment of an existing vessel with experimental suction dredging plant. Here again the result has been the continual expansion of Liverpool as a shipping centre.

From such beginnings this century-old Renfrew firm has supplied suction dredging plant to all the most important harbour authorities of the world, and may fairly claim to be regarded as pioneers in the progress of modern times. They have in hand at the present time two large shallow-draft suction dredgers to the order of the Egyptian Government, and under the direction of Messrs. Coode, Wilson, Mitchell and Vaughan-Lee, London, designed for cutting an immense new river bed for the White Nile through virgin country. They are also constructing under the direction of Messrs. A. J. Barry and Partners, London, a powerful bucket dredger for the Tees Commissioners.

It is not to be inferred from the foregoing that the suction dredger has, or is likely to, supersede other types of dredging craft. Each has its peculiar uses and disabilities, but there is no doubt that the suction type, while requiring special skill and experience to ensure success, is a unique tool for the establishment and maintenance of harbours not naturally open to safe navigation. At no time has this type of dredger failed to do efficient work when put to a suitable task and properly handled.

It is refreshing in these days of depression to see the Clyde upholding its world pre-eminence in the construction of ships and dredgers.

Port of Manchester Notes.

Although general cargoes have been good, the trade of the port during the last two months has reflected to some extent the prevailing depression.

The close of the cotton season showed Manchester in a favourable position regarding comparative imports although there was a falling off in volume.

The percentage of United Kingdom imports of American cotton coming direct to Manchester rose from 21 per cent. in the season 1928-9 to 27 per cent. in the season just closed.

The percentage of Egyptian cotton imported direct also showed an increase, as did that of East Indian, which rose from 21 per cent. to 36 per cent.; an actual increase of 12,000 bales. Peruvian and Argentine cotton was also imported direct during the period. The present cotton season has opened well, American imports show an increase and East Indian arrivals amount to over 24,000 bales against 11,000 bales in the corresponding period of last season.

August saw the resumption of cattle shipments from Canada, opened by the " Manchester Commerce " with 127 head of store cattle.

Indian trade during August showed some improvement and during the month the imports of grain were considerably more than in the corresponding month of last year.

September trade showed some decline generally, although North American and Scandinavian trade was normal and oil and spirit cargoes were maintained.

Paper and pulp wood were amongst the chief bulk imports, full cargoes of paper arriving from Quebec and Newfoundland. The first consignments of paper-making materials for Bowater's new mills at Ellesmere Port are expected shortly.

Exports of machinery during August included 22 railway coaches and two steel barges loaded for Buenos Aires on the ss. " Belpamela." In September consignments of machinery from Metro-Vicks left the port for Russia on the ss. " Omega."

The new Manchester-North Pacific Coast service opens early next month with the arrival of the ss. " Jefferson Myers."

The Finnish steamer " Garryvale " arrived at Ellesmere Port on Monday, October 6th, with the first consignment of wood pulp for Messrs. Bowater's Mersey Paper Mills, Ltd.

The vessel had on board about 30,000 bales of wood pulp weighing 6,000 tons, as well as general cargo.

This is one of the largest cargoes of pulp brought along the Ship Canal for many years. The pulp is being delivered overside direct into railway waggons, the bulk of it for conveyance to Messrs. Bowater's mill at Ellesmere Port and the remainder to other points.

It is expected that operations will shortly commence at Messrs. Bowater's mill.

Canada's Overseas Trade.

The Acting High Commissioner for Canada in London has received from the National Development Bureau of the Dominion Department of the Interior at Ottawa copies of the 1930 edition of a map of the world showing trade routes and shortest sailing distances between Canadian and foreign ports.

Copies of the map in question can be obtained on application to the Secretary, Office of the High Commissioner for Canada, the Canadian Building, Trafalgar Square, London, S.W.1, or from the Director, National Development Bureau, Department of the Interior, Ottawa, Canada.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay held on the 23rd September, 1930, the following were the main items of business disposed of:—

A lease of an additional plot of land measuring 2,555 sq. yards at Wadala was granted to Messrs. Mawson, Vernon Co., Ltd., for an extension of their asphalt refinery works.

A supplementary estimate of expenditure amounting to Rs. 26,100 was sanctioned, subject to the sanction of Government, for completing the renewal of roofs of "C," "G," and "L" sheds, grain depot. The work forms part of an estimate amounting to Rs. 1,01,575 approved by the Board in 1928 when it was decided that the expenditure should be distributed over the ensuing three years.

The Trustees approved an amendment of the Docks Scale of Rates to give discretionary power to the docks manager to grant exemption from extra fees in cases in which railway wagons, although requisitioned by importers in time, are supplied to them so late on the last free day as to render loading on that day impracticable.

It was decided to sell the s.l. "Princess," which was built in 1877-78 and is used principally for conveying workmen from the workshops to the various Port Trust vessels in the harbour, and in her place to transfer from the Port Department to the Chief Engineer's flotilla the s.l. "Siren" which was purchased in 1890 and is still serviceable. The s.l. "Siren" became surplus to requirements when the m.l.b. "Catherine" was commissioned early this year.

The Board considered representations from the iron trade, the charcoal, timber, firewood, tile, scrap iron, sand and Chunam kiln merchants for a reduction of ground rent in view of the present depressed state of trade and political events. Having regard to the serious fall in revenue receipts, it was decided to inform the petitioners that the Trustees regretted they were unable to accede to the request.

The Board considered a report of the Finance and General Committee on the revenue receipts for the five months April to August, 1930. The chairman's note submitted to the committee pointed out that owing to world trade depression, and partly to political conditions in India, tonnage figures of imports and exports for the first five months April to August, 1930, show a fall of over 16 per cent. in the docks and 18 per cent. at the bunders. In view of the serious fall in revenue receipts, the Board considered the question of a general increase in charges, but finally decided to defer this question until statistics for the half-year are available when the position would again be reviewed.

At a meeting of the Trustees of the Port of Bombay held on the 7th October, 1930, the following were the main items of business disposed of::—

In April last the Trustees, with a view to assisting the progress of Indianisation in the Mechanical Branch of the Engineering Department, sanctioned two new posts of Junior Assistant Mechanical Superintendents on Rs.400-25-500 p.m., both to be reserved for Indians after serving apprenticeship in the Port Trust workshops and undergoing a course of training in Great Britain to give them the requisite experience to qualify for the higher grade posts. In accordance with this scheme the Trustees considered applications from candidates and decided to appoint Mr. Zafar Ahmed, L.M.E., on a probationary agreement, during which he will proceed to the United Kingdom for two years' practical and technical training, followed by a year's sea-going experience in a modern equipped vessel.

For the second post of Junior Assistant Mechanical Superintendent, two selections were made, namely Messrs. B. Chuckerbutty (a cadet who passed out of the I.M.M.T.S. "Dufferin") and Sayed Mahmood Kadri. The training of these two apprentices will comprise two years in the Bombay Port Trust Workshops, three years' apprenticeship in selected Engineering Works in Great Britain, coupled with theoretical training at Technical Colleges, one year in the drawing office of an approved engineering firm, and finally two years as engineer on a sea-going vessel or, in the alternative, in a responsible position in charge of machinery or the construction or erection of machinery.

On completion of this training the better of the two candidates will be offered the post of Junior Assistant Mechanical Superintendent, and the other if suitable will be offered employment in the first available vacancy.

The following amendments of the Docks and Bunders Scales of Rates were sanctioned:—

(1) To provide a special wharfage rate on motor tyres, tubes and flaps imported singly instead of in cases.

(2) To provide a special wharfage rate on (Indian) veneers and splints used in the manufacture of matches.

(3) To allow of strawboards, paper, etc., in packages weighing up to 5¼ cwts. being imported at the rate of wharfage previously charged on packages not exceeding 5 cwts.

Minor estimates were sanctioned for levelling and re-surfacing a plot of land at Wadala leased to Messrs. Mawson Vernon Co., Ltd., for lighting the site of the military cook-house at Ballard Pier; and for constructing a latrine and drinking fountain at "T" shed, Grain Depot, for the use of the tenants.

Welland Ship Canal opened for Down-bound Traffic.

On September 10th the steamer "Georgian" of the North-west Transportation Company passed through the new Welland Ship Canal from Lake Erie into Lake Ontario, the great flight locks Nos. 4, 5 and 6 together with lock No. 7, having been unofficially opened to permit of the vessel's passage. The steamer was the first to pass through locks 1, 2 and 3 on April 21st last. Guard Lock No. 8 at the Lake Erie end of the level stretch of the canal above the Niagara escarpment being already opened, the passage of this steamer signalises the complete opening of the great waterway, though it is understood that traffic will only be permitted for some time in the downward direction. Dredging is still being carried on in the southern portion of the canal and the official opening of the waterway is likely to be deferred until next spring when the 1931 navigation season opens.

The "Georgian," a package freighter, carried 1,500 tons of flour and grain, and after passing through Locks 7, 6, 5 and 4 was navigated through one-half of the giant twin flight locks which are the most spectacular feature of the new canal. These twin flight locks are situated at the steepest part of the Niagara escarpment overcoming a vertical height of 139½-ft. out of the total drop of 326-ft. between Lake Erie and Lake Ontario. In length and width they are the same as the other lift locks providing a clear length of 800-ft. and a width of 80-ft., while the navigable depth is 27-ft. The longest lock is the guard lock No. 8 at the summit level of the canal at the Lake Erie end. This is the longest canal lock in the world, measuring 1,380-ft. between the inner gates.

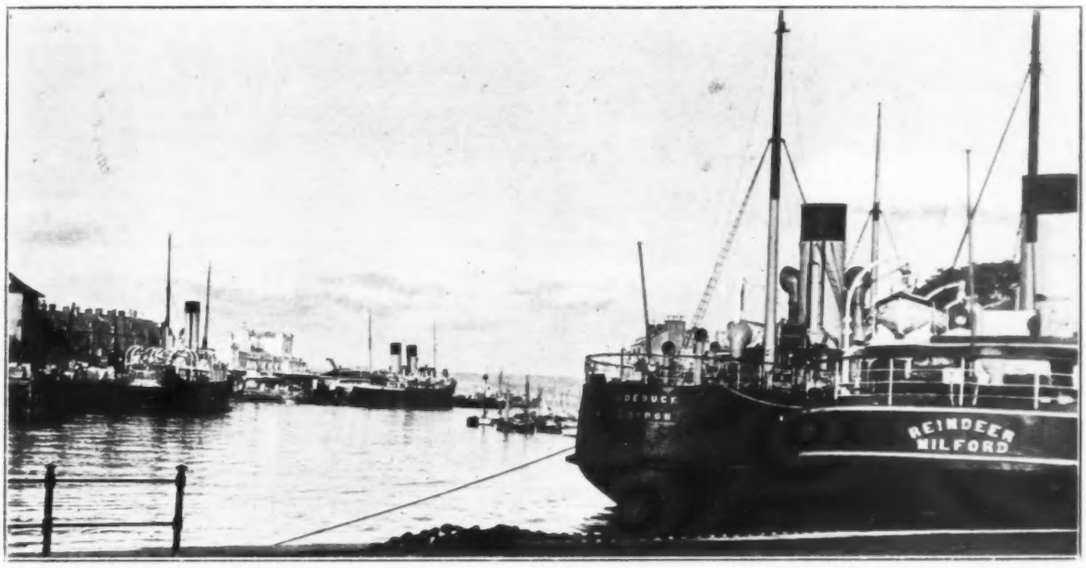
While 13 locks of the old Welland Canal remain in use for up-bound traffic, the 7 locks used in the downward direction replace the entire 26 of the older canal, the time for the passage through from lake to lake being cut to about 8 hours as compared with more than twice this length of time required before the new facilities were brought into use. More important is the fact that when up-bound traffic is permitted, the great freighters of the upper lakes will come through to Lake Ontario; thus vessels of 600-ft. in length and 10,000 gross tons will take the place of the smaller vessels which at present return through the 270-ft. locks of the old canal with their width of only 45-ft. and navigable depth of only 14-ft. as against twice that depth in the new waterway. Next year great grain cargoes of half-a-million bushels will be discharged at Lake Ontario ports instead of the 100,000-bushel shiploads which are now able to pass the Niagara escarpment.

A New Type of Inland Shipping Vessel.

A trial has recently been given to a new type of vessel—a so-called "Schubschiff" (pusher ship)—built by the Deggendorfer Werft and Eisenbaugesellschaft m.b.H. of Regensburg. The principle is that instead of barges being towed by a tug they are pushed, the barges being steered from the "pusher ship," the two vessels forming a single unit. The "pusher ship" is of short and broad build, being 25 metres long, 9 metres broad, and with a draft of 1.30 metres. It is fitted with a 700 h.p. Diesel motor which drives two special Voith-Schneider propellers of a design which combines propulsion with steering powers, obviating a rudder. The manoeuvring, and particularly the turning powers of the new craft is said to be exceptionally good.

Weymouth Harbour.

Government Grant for Harbour Improvement Scheme.



Weymouth Harbour.

WEYMOUTH CORPORATION have obtained a Government grant for a scheme for improving the harbour. The scheme which is at present under consideration will, when completed, involve an expenditure of approximately £150,000, and it includes the provision of three additional cargo berths and an extension of 260-ft. for the use of pleasure passenger steamers. The whole work is to be carried out in ferro-concrete and along the harbour side of the pier there will run a crane track and a double railway line for passenger and goods trains, the passenger trains of course, being necessary in connection with the Great Western Railway Channel Islands Service.

Weymouth Harbour.

The number of passengers from Weymouth to the Channel Islands and the amount of cargo is increasing annually, also in recent years the French traffic has been of considerable and increasing volume.

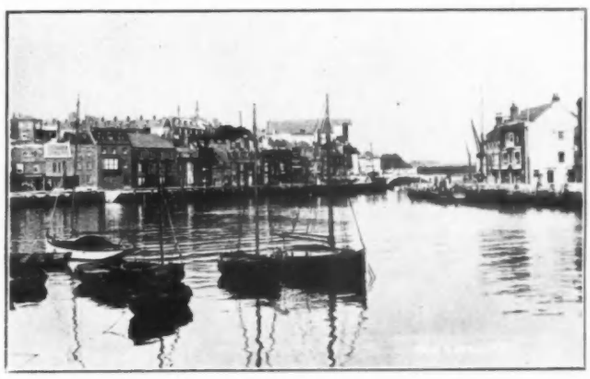
The present pier is to be reconstructed at double its width for the whole length and the present wooden portion of the pier is to be taken away altogether and replaced by Ferro-Concrete open pile work.

A considerable amount of dredging is to be undertaken to make the berths available at any state of the tides and an alteration is to take place on the other side of the harbour opposite the G.W.R. Passenger Landing Stage to provide a turning-point for the passenger steamers. Recently the Great Western Railway Company put on this service two improved and larger steamers which require more room for turning, which necessitates the alteration referred to.

Weymouth Harbour.

One half of the new pier will be available as a public promenade and will be 30-ft. wide, and will be provided with shelters, lavatory accommodation and so forth. The railway portion of the pier will include the necessary buildings for the railway company's work and also Customs Officers and inspection rooms and refreshment rooms.

When the scheme has been completed the facilities in the harbour will be greatly increased and will make it possible for ships to be handled economically and speedily.



Weymouth Harbour.

Madras Harbour Notes.

Cochin Harbour Works.

AT a meeting of the Cochin Port Board held recently a communication from the Government regarding certain variations made by them in the sanctioned programme of works for 1930-31 was considered. The Board had objected to these variations for which its approval had not been obtained. The Government have now stated that the alterations were made with a view to expedite the work of raising to the agreed levels an area of about 58.59 acres of reclamation at Vendruthy in order that the full cost of reclamation at Rs. 12,000 per acre payable by the Cochin Durbar may be recovered as early as possible. The Government added that the Board was not consulted about the alterations as only material alterations from the original estimates required approval, but those now made were not of a material character and orders had to be issued at once. The Board, however, will be given an opportunity to consider all estimates and programmes before they are sanctioned by the Government.

The question of creating an Insurance Reserve Fund was next discussed. It was resolved to re-insure the dredger " Lord Willingdon " for a period of one year from August 22nd, 1930.

Tuticorin Port Dues Reduced.

An important subject which concerns more than half the ships that use Tuticorin Port, was considered at the last meeting of the Tuticorin Port Trust, with Mr. S. P. Thompson in the chair.

Giving consideration to the Government Order regarding the reduction of port dues by half an anna per ton at ports in the eastern and western groups, the house resolved to reduce the port dues from annas four to annas three per ton in the case of any foreign ship or steamer calling at Tuticorin (Class B), as passed by the Government in April, 1924.

Madras Harbour Charges.

It is a well-known fact that boat hires and harbour dues levied at Madras on imported grains and pulses are very heavy. The boat hire and harbour dues are now Rs. 4 per ton and this compared unfavourably with the dues levied in other parts of the presidency. As a result there is the risk of the grains and pulses trade now passing through Madras (or at least the bulk of it) shifting to other ports. But the interests of the merchants and those of the Madras Port are identical, since any loss that will be suffered by the merchants will mean loss of revenue to the Port Trust as well.

In these circumstances a deputation of the Rice and Grain Merchants' Association of Madras have requested the Chairman of the Madras Port Trust to lower the harbour dues and also increase the facilities for handling cargo in the harbour. The deputation also asked the chairman to help in securing from the M. and S.M. Railway special rates for goods sent up-country by grain and rice merchants in Madras. The chairman in reply said that he would give careful consideration to the various matters referred to by the deputation.

New Wharf for Tuticorin Harbour.

At a meeting of the Tuticorin Port Trust held in the second week of September a proposal was made to transfer the Customs passenger baggage shed at Tuticorin to the Port Trust. The Trust was unwilling to accept the conditions proposed, and it was decided not to take over the shed. More accommodation for passengers would be provided in the new goods shed to be built.

A Government Order approving the additional appropriation of Rs. 24,399, required during 1930-31 for the construction of the wharf, one sanctioning the re-appropriation of a sum of Rs. 17,460 for the construction of sliding doors on the sides of the open sheds at the Tuticorin Port, another sanctioning the revised estimate for Rs. 2½ lakhs for re-dredging the boat channel were resolved.

India's Foreign Trade.

According to the latest trade returns of British India the grand total of gross Indian sea and land customs revenue (excluding salt revenue) collected during August, amounted to Rs. 3,62 lakhs as compared with Rs. 3,90 lakhs in the previous month and Rs. 4,45 lakhs in August, 1929.

The total revenue realised in the five months April to August, 1930, was 19,86 lakhs of rupees as compared with Rs. 20,73 lakhs in the same period last year. To this import duties contributed Rs. 15,58 lakhs, export duties Rs. 1,87 lakhs, excise duties on motor spirit Rs. 1,23 lakhs and on kerosene Rs. 57 lakhs, and Land Customs and miscellaneous Rs. 61 lakhs.

Increases were noticeable in import duties on sugar and mineral oils and in excise duty on kerosene. On the other hand, import duties on iron and steel, tobacco, cotton piece goods, yarn and textile fabrics (other than cotton and silk), liquors, motor cars and cycles, silk piece goods, cutlery and hardware, cotton yarn and thread, matches and match splints and veneers, paper and stationery, pneumatic rubber tyres and tubes, railway plant and rolling stock and artificial silk yarn and thread and export duties on jute, raw and manufactured, hides and skins, and rice and land customs receipts and excise duty on motor spirit, showed noticeable decreases.

The protective special duties on private imports during the five months April to August, 1930, aggregated to Rs. 2,98 lakhs. The duties on Government stores, inclusive of protective duties collected thereon, amounted to Rs. 27 lakhs in the corresponding period of the preceding year.

The share of the United Kingdom in imports was 42 per cent. as in August, 1929, while her share in exports rose from 28 per cent. to 29 per cent. The shares of Germany, Japan and the United States in August, 1930, were, respectively 8, 5 and 11 per cent. under imports, and 5, 8 and 8 per cent. under exports.

The Tonnage of Vessels Entering British India Ports.

The tonnage of vessels that entered into British India and cleared outward with cargoes from and to foreign countries and British possessions during August amounted, respectively, to 634,000 and 641,000 as compared with 619,000 and 600,000 in July, 1930, and 730,000 and 732,000 a year ago. During the five months ended August, 1930, the tonnage of vessels entered and cleared with cargoes amounted, respectively, to 3,192,000 and 3,469,000 as compared with 3,352,000 and 3,615,000 in the corresponding period of the preceding year.

Important Discovery in Cochin Harbour.

An important discovery, of interest to archaeologists, has been made in Cochin. When dredging operations were being carried out in Cochin Harbour, twelve tombstones were discovered, bearing inscriptions in Portuguese. They date from 1600. Most of the slabs measure 6-ft. by 2-ft., but the largest measures 8-ft. by 4-ft. Cannon balls and several human skulls have also been discovered.

General.

The " Garmula " has brought in tow from Karachi to the Port of Vizagapatam three large lighters which will form the nucleus of the fleet of large size lighters to be used in the port consequent on shipping and landing operations taking place at the new quay wall from about the end of the current year.

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The South Indian Chamber of Commerce have petitioned the Government requesting (1) that sufficient accommodation be made at the warehouse at Cocanada, and (2) that the free days at Cocanada be calculated from the date of the warehousing and not from the date of discharge into the lighters.

New Dredger that does the Work of Three.

A new and highly-efficient dredging plant, capable of doing the work of three of the old type of dredger, has been introduced on the Grand Union Canal to improve the waterway, pending the grants of Parliamentary powers to proceed with the company's £881,000 development scheme which the Special Committee set up by the Government to consider schemes of public utility has already sanctioned.

Delay in securing powers is unavoidable, but the Company is pushing on with as much preliminary work as may be done. In addition, work for which no parliamentary powers are required is being done. Channels are being deepened and banks are being walled with concrete so that owners of motor-propelled boats may use the canal without the wash eroding the banks. The company has nothing to do with the building of boats. It is concerned with providing an efficient waterway upon which traders can put whatever boats they want.

When the main scheme can be proceeded with, work will be found for 800 to 900 men for three or four years. Many will be unemployed miners. The canal stretches from London to Birmingham, but most of the work will be between Napton, Warwickshire, and Birmingham, a distance of 40 miles. This channel, which will only take small boats at present, will be widened and deepened to take two motor barges, each of 12-ft. 6-in. beam, abreast.